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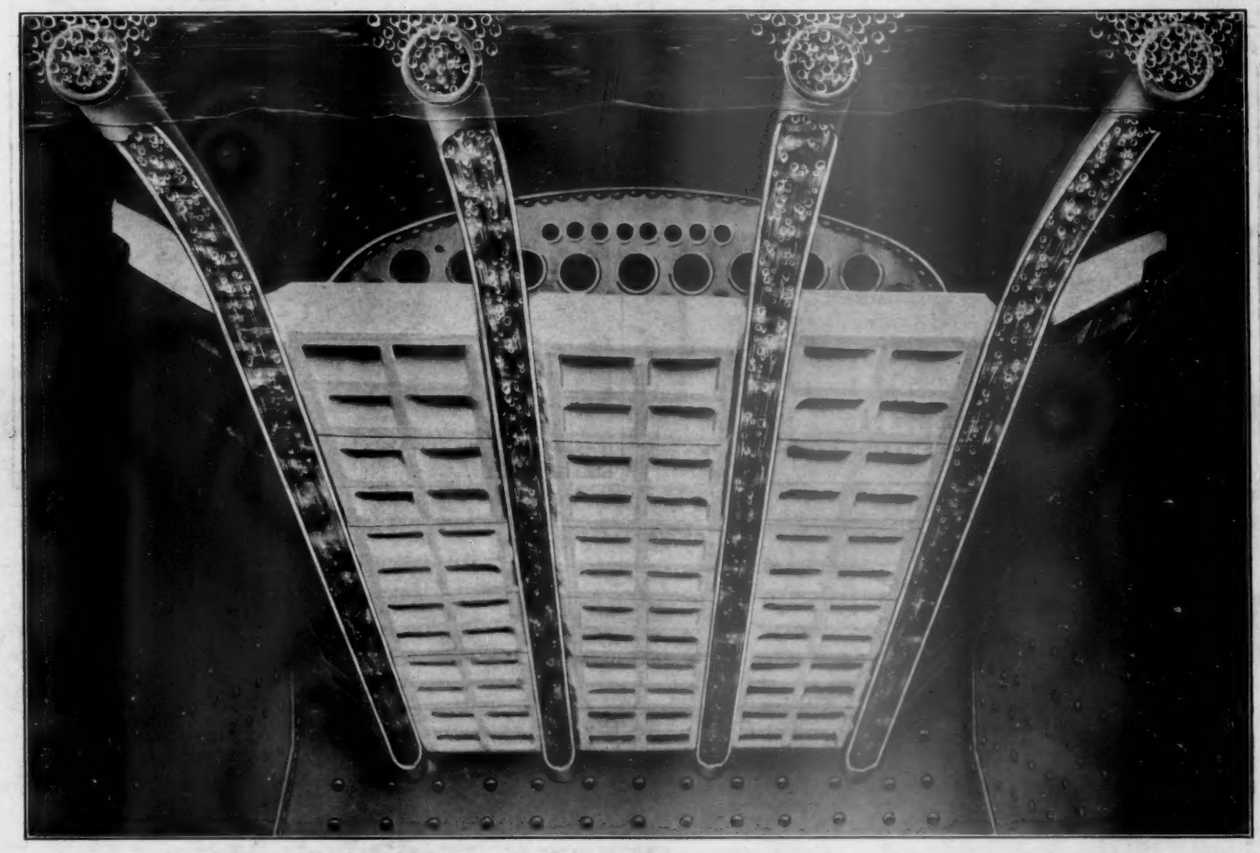
Railway Age

FIRST HALF OF 1919—No. 12 NEW YORK—MARCH 21, 1919—CHICAGO SIXTY-FOURTH YEAR

Published weekly by Simmons-Boardman Pub. Co., Woolworth Bldg., New York, N. Y. Subscription Price, U. S. and Mexico, $5.00 a year; Canada, $6.00; foreign countries (excepting daily editions), $8.00. Entered as second-class matter, January 30, 1918, at the post office at New York, N. Y., under the Act of March 3, 1879.



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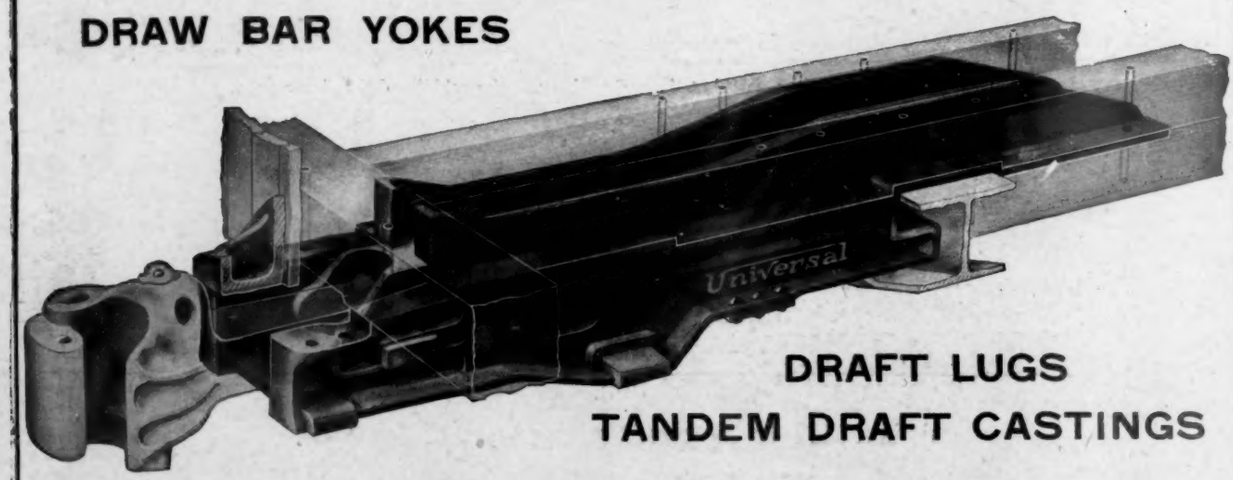

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EDITORIAL

Railway Age

How High Wages Can Be Maintained

As suggested in the *Railway Age* of March 14, the high wages to railway employees can only be maintained by either raising the freight and passenger rates, or by increasing the efficiency of the individual employees. The problem presented should be solved as far as possible by increasing efficiency. The Railroad Administration is therefore face to face with a tremendous problem which can only be solved by a thorough and intensive educational program. First and foremost, the managements and the men must be made to realize the vital necessity for cordial and hearty co-operation. This may sound academic, but it is a fundamental principle on which any sound solution of the railway problem must be based. It can be inspired by a large, broadminded expression and attitude toward this end on the part of those at the head of the Railroad Administration and its various subdivisions. In the second place, educational campaigns must be conducted in all departments and among every class of employees to show them exactly how they can best do their various tasks. In these days of highly specialized work, many of the men lose interest because of the monotony of their work, and look with fear and distrust upon any further tendency in that direction. This fact must be recognized and the training of the men must be broad enough so that they may occasionally be shifted and thus maintain their interest in the work. Good work, either as to quality or quantity, cannot be done by men who are not interested in it, and who are not working at it in the spirit of playing a game.

Reduced Demurrage Rates Called For

The brakeman, in the old story, who wanted a pass to go home at the end of the week was rebuffed by the cold-hearted superintendent with the question whether he would expect a farmer to hitch up a horse and buggy on Saturday night to carry home a hired man. "No," said the brakeman, "of course not; but he would be a darned mean farmer if he should refuse such a small favor when he had the team all hitched up and was going in that direction." The lumber dealers who are now demanding the reduction of demurrage charges on freight cars present to the railroads the same argument: Your cars are standing 'round earning nothing; why charge us for delaying them when you continue to delay them (empty) yourselves? It is the old question of maintaining a *system,* for the promotion of regularity and broad economy, even when the immediate evidence of economy is lacking. A demurrage charge is necessary to insure economical use of track room, regardless of the value of the car. To suspend or modify the charge every time the value of the car service changes, tends to defeat the main purpose of the rule. Experience has demonstrated this. Uniformity of rates is of value in itself in spite of minor or temporary unfairness. If the lumbermen could have the full benefit of the brakeman's argument their traffic sharps would soon be proposing that on descending grades as, for example, from Altoona to Harrisburg, lumber should be carried for nothing—at least in cases where a car might be needed to fill out a train to the standard length! The interesting feature about this request of the lumbermen is that in Washington it comes before Max Thelen, director of the division of public service. Mr. Thelen formerly was a railroad commissioner in California, where a high demurrage charge has been in force for nearly ten years, producing marked economy in the use of freight cars; and in his answer he may be expected to set forth the true principles of demurrage rates, high or low, regular or irregular.

What Locomotives Should Be Stoker Fired?

There are now about 5,000 locomotives equipped with mechanical stokers in this country. The rapid rate at which the stokers have been applied during the last few years is due to the necessity for increasing the capacity of the individual locomotives and thus the amount of traffic that can be handled over a division in a given time. The question as to the dividing line between the hand-fired and the stoker-fired locomotives has been one of much debate and discussion. The size of the locomotive, within the questionable limits, is not nearly so important a factor as the capacity to which the locomotive is to be worked for long periods. W. S. Bartholomew, president of the Locomotive Stoker Company, gave it as his opinion at a meeting of the Western Railway Club on Monday evening that, in general, locomotives should be equipped with stokers which weigh 200,000 lb. or more on the drivers, have a tractive effort of 50,000 lb., a grate area of 60 sq. ft., and which require more than 4,000 lb. of coal per hour for long periods. Of course, there are cases where it is desirable to use mechanical stokers on locomotives below these limits. Lighter and less powerful locomotives, for instance, may be stoker fired to advantage when they are worked to the limit of their capacity for sustained periods. While stoker-fired locomotives may use more coal per locomotive mile—and undoubtedly they will if the best use is made of them—it does not follow that the rate per ton mile will be any higher, and even if it is the cost of moving the freight per ton mile will be decreased because of the larger tonnage per train or the more rapid rate at which it is moved over the division. It is true that the higher the rate of combustion the lower the efficiency of combustion. We must pay the price in fuel economy if we are to get the greatest horsepower output from a locomotive, but the increase in the train load and the greater amount of business that can be handled over a division in a given time will far more than offset any loss in this respect. As Mr. Bartholomew suggested, the important thing is to move the maximum amount of tonnage over a division in a minimum amount of time.

Financing the Needs of the Railroads

The government has announced its intention of issuing what amounts to due bills to the railroad companies for amounts owing on rental and accepting 90-day drafts for amounts owed for equipment. In this way the money received from freight and passenger revenues can be so conserved as to permit of the continued operation of the railroads until such time as Congress meets and passes a bill providing an additional $750,000,000 or more for the Railroad Ad-

ministration's revolving fund. The total amount of such due bills will probably run up to some hundreds of millions of dollars, the exact amount depending on how far the roads fall behind in earning the rentals due and the length of time that will elapse before Congress is called in extra session. The railroad corporations are, therefore, thrown on their own resources to finance their corporate needs. The due bills will not be negotiable, but will be assignable and could presumably be used as collateral for railroad corporations' note issues. The sale, however, by the government of the Victory Loan bonds is about to begin and the strain on government credit will at best be severe, without having the added difficulty of competing with railroad collateral notes secured by government promises to pay. Bankers, railroad men and the Railroad Administration are now in conference. A plan is being worked out by which the due bills of the government and the accepted drafts can be taken by the railroads and equipment companies to their banks and discounted just as commercial paper would be discounted. It then should be possible for the banks to rediscount these due bills with the Federal Reserve banks, which in turn can issue currency against them. Under ordinary circumstances this would be an expansion of credit that might not be justifiable, but under present circumstances it would appear to be the best solution of a most difficult and complicated problem. There is, of course, the question of the legality of such a proceeding as here suggested, but the law giving the President the right to take over the railroads is so broad that, to the layman at least, its provisions appear to give the Railroad Administration ample authority to issue due bills which will be legal obligations and, therefore, acceptable for discount by the banks and re-discount by the Federal Reserve banks. Such an arrangement would interfere in the smallest possible degree with the successful flotation of the Victory Loan bonds.

Freight Car Situation Serious

ONE OF THE CHIEF CRITICISMS of the railroads under private management has been that during periods of depression it has been common practice to curtail expenses materially, thereby accentuating non-employment conditions and not using the opportunity for bringing the rolling stock up to a good condition of repair. This same criticism now applies most decidedly to the railroads under government operation. It is doubtful if the general condition of the more than 2,500,000 freight cars was ever as bad as it is today. While the government's statistics show a bad order car situation of a little over five per cent, they by no means represent the true condition of all the freight cars. Traffic has fallen off tremendously and quantities of freight cars are stored all over the country. Naturally, those cars that are in the worst condition are the ones chosen for the storage tracks and those which are better able to run are kept in service. The percentage of cars in bad order refers only to those cars that are in service and therefore the figure is low. If, on the other hand, traffic conditions were such as to require the use of all the cars the country would be in bad shape for equipment.

It is a well known fact that the cars are in a deplorable condition. One federal manager has ventured the statement that he has never seen them to be in worse condition. It is necessary that something be done and be done quickly to improve the situation. A general reduction in working hours and in labor forces is being made in the car departments all over the country. Such a policy is extremely short-sighted and does not adequately protect future business. Car Service Section Circular CS-53 and Circular No. 27, recently issued by W. T. Tyler, director of the Division of Operation, indicate that the bars are down now for returning the cars home to the owning lines. Every step should be taken to get the cars home in order that they may be properly repaired and the betterment programs which have been suspended for such a long period continued. The war, of course, has been responsible for the present condition of cars, due primarily to the fact that business was excessively heavy and that a very small percentage of cars was on the home rails. If the Railroad Administration is out to make a showing in operating expenses in the same manner as the private corporations have done in the past, the cars will not be repaired, but if, on the other hand, it recognizes the excellent opportunity now, with traffic light, of getting these cars into the shop and putting them into first-class condition, our railways will be in shape to better handle any large increase in business which is very liable to come after peace negotiations have been closed.

Advance of Rates Needed Under Either Government or Private Operation

THE SENTIMENT of the public and of Congress undoubtedly has crystallized in favor of the return of the railways to private operation. The continuance of government operation or the adoption of government ownership will not be seriously considered if it can be avoided.

But every month's statistics of earnings and expenses emphasize with increased force the fact that the return of the railways to private operation will be no simple and easy matter. In no month since the armistice was signed have the railways earned anywhere near enough to pay the standard returns guaranteed to the companies. In November their net operating income was $57,000,000; in December, $28,000,000; and in January, $19,000,000; a total of $104,000,000. The average operating net income earned in the same three months of the fiscal years 1915, 1916 and 1917—the years on whose income the guaranteed standard returns to the companies are based—was over $215,000,000. In other words, during the last three months for which statistics are available the government's guarantees to the companies were approximately $215,000,000; the net operating income actually earned was $104,000,000; and the deficit incurred by the government was about $110,000,000.

The statistics for January are relatively the worst of all. The total earnings made by railways under government control were $109,826,000 more than in January, 1918. The freight business moved was 10 per cent more than in the terrible January of 1918. The weather conditions were as favorable to economy of operation as were ever known in winter. Nevertheless, the increase in the operating expenses of the roads over January, 1918—although only a small amount of retroactive advances in wages was included—was $88,200,000, with the result that, as already shown, the net operating income made was only $19,000,000. The average net operating income earned in January in the three years on which the returns guaranteed to the companies are based, was $55,331,000. Thus, in the first month of the year the Railroad Administration shows a deficit of over $36,000,000.

It does not seem reasonable to assume that either the freight movement will remain as small as it is now, or that operating expenses will remain relatively as high as they are now. Business will surely begin soon to show signs of recovery from the slump which followed the signing of the armistice. The operating officers, from Director of Operation Tyler down, are making the most energetic efforts to control and reduce expenses. But under the present system of government operation there are certain big special obstacles to the reduction of expenses which are extremely difficult to overcome. Besides, the train service employees are still to be given a large advance of wages, and the expenditures for maintenance must be increased, if the properties are to be kept in even as good condition as at present.

Undoubtedly if the railways were returned to private operation they would be more economically operated than they can be under the present system. But it is impossible to believe, in view of the statistics of earnings and expenses for recent months, that, with existing wages of labor, prices of fuel and materials and passenger and freight rates, they can be so operated under government control as to avoid another large deficit, or under private control as to enable them to earn enough to pay their interest and reasonable dividends.

There is no prospect of a reduction of wages. Prices of fuel and materials are weakening some, but not much. In the circumstances, there seems to be but one method available for restoring the balance between earnings and expenses, and that is to advance rates again.

It is impossible to see how, without another advance of rates, the railways could be restored to private operation without bankrupting many companies and forcing many others to suspend their dividends. It is also impossible to see how the government, without another advance of rates can avoid piling up a larger and larger deficit. Its deficit in the year 1918 was about $225,000,000. This was increased to about $260,000,000 by the deficit incurred in January, 1919.

The public must pay in taxes the entire deficit incurred in operating the railways. But there ought not to be any deficit incurred. Those who use transportation service should pay the entire cost incurred in rendering that service. The taxpayers should not be required to pay any part of it. The Railroad Administration ought to advance the rates at once enough to prevent any more deficit from being incurred. With the rates high enough to cover all railway costs, including the standard return to the companies, they would be high enough to enable the railways to be safely returned to private operation.

Would public opinion permit another advance in rates? We believe it would, if the facts were presented to the public clearly and fully. The price the public will have to pay if the railways are not returned to private operation will be greater, either in rates or taxes, or both, than the price it will have to pay if they are not returned to private operation, for our own experience, like that of every other country that has had experience, has shown that government operation inevitably is more expensive than private operation.

Public sentiment has crystallized in favor of returning the railways to private operation. But if this is to be done without endangering the entire financial fabric of the nation, the return must be made under conditions which will enable the companies to live. If the effect of the return of the railways to private operation is to be to increase the prosperity of the country, the return must be made under conditions which will enable the companies to prosper. Perhaps after the railways had been under private operation for some time rates no higher than those now in effect would be sufficient. But it will take months after private operation is resumed to restore operating conditions to normal and effect the improvements in operating methods which are needed to secure the greatest practicable economy. During this period of readjustment the companies will need higher rates to enable them to prosper, or even to live, almost as much as the government now needs them in order to stop the increase of its deficit.

It will not cost the public near as much to return the railways to private operation as it would to continue government operation; but it will cost something. Will the public willingly pay the price necessary to restore private operation, or will it refuse to pay it, and thereby in effect force itself to pay the much higher price that it will have to pay if it continues government operation? The public must answer this question. It is one of the most important and pressing questions now confronting it.

The Public Learns When It Pays the Bill

THE PRESENT SYSTEM of government management of the railroads is sometimes described as "public" management, while the former system of corporate management is referred to as "private," but some of the important facts regarding railroad affairs are rather less public now than they were before. Railroad wages have been enormously increased during the past year. An estimate of the aggregate amount of this increase has received considerable publicity—with some assistance from those who were interested in letting it be known that government operation has been rather expensive. But only a very few people have much of an idea as to how the money was distributed, what relation the increase in wages bore to the increase in the cost of living, or the facts which determined the decisions which produced the wage awards. Wage orders, revisions, supplements, addenda and interpretations, expressed in terms of increases, percentages, minimum rates, or rates per month in place of former rates per hour, or vice versa, have followed each other with such bewildering rapidity that no one not in close touch with the facts knows whether or not to believe the stories that are passed around of call-boys receiving more than technically trained engineers, of sudden advances from $65 to $185 a month, of green "car knockers" being paid more than experienced passenger enginemen, etc.

Doubtless it is as yet too early for the complete statistics to be available, but in comparison with the amount of public discussion which accompanied the campaign of the brotherhoods for a basic eight-hour day in 1916, the wage increases of 1918 have passed almost unnoticed. The eight-hour day demand, which resulted in an increase of wages amounting to about $65,000,000 a year, became a matter almost of public debate. Not only were its pros and cons fully discussed in the newspapers and on public platforms, but the conferences between the representatives of the employees and of managers were held in open session and were fully reported.

Most of the proceedings relating to the wage increases of 1918 have been conducted behind office doors. The very fact that large demands have been made by the employees' organizations, such as that of the brotherhoods last summer for further increases and time and one-half for overtime, which is now in the process of reaching a decision, and the recent demand of the federated shop crafts for a third increase within a year, are not made public. They are discovered by reporters weeks afterward. It is true that public hearings were held before the Railroad Wage Commission last winter and because a newspaper got a "scoop" on its findings they were later given out, but the recommendations of the commission were merely the prelude to the series of wage orders that has followed. The Board of Wages and Working Conditions also holds hearings in the preliminary stages of a wage controversy between the organizations and the Railroad Administration—there are still controversies, although they are managed with less propaganda than was used on both sides in 1916—but the board merely recommends and the settlements are the result of negotiation.

Some of the facts pertaining to the public operation of the railroads have been made public in the form of replies to the critics who have made what the Railroad Administration considers an unfair statement of them. For instance, Howard Elliott, by referring to the fact that there were 16 per cent more employees on the Pennsylvania after a year of government operation than in December, 1917, has brought out the fact that the increase in the number of employees on the railroads as a whole was only 8.2 per cent, whereas an impression had been created that there was a shortage of labor. Whether or not it was fair to point to the number of employees at the beginning and at the end of 1918 as an example

of the effect of government operation, after the railroads had been obliged to take on almost any kind of men they could get, such a comparison was needed to keep the government ownership advocates from claiming that labor has been more efficient under government operation and higher wages than it would have been under other circumstances; just as it has been necessary for some people outside of the Railroad Administration to call attention to the increase of $1,140,000,000 in operating expenses in a year in order to let the public know that the government has not accomplished the legerdemain of increasing wages $800,000,000 a year merely by cutting railroad presidents off its payroll, consolidating ticket offices and standardizing locomotives.

The Victory Liberty Loan

THERE ARE MANY REASONS why readers of the *Railway Age* should prepare now to make large subscriptions to the Victory Loan to be offered in April. One reason is that the government reached the peak load of its war expenditures after the Fourth Liberty Loan funds had all been exhausted. Another is that the Victory Loan bonds or notes will be an especially desirable investment.

The government will have to borrow about six billions from the public in order to fund its present floating indebtedness to the banks. The treasury has been forced to issue $300,000,000 a week in Treasury Certificates in order to meet the extremely heavy outlays incident to liquidating the war machine. The governmental expenditures reached high tide in November, December and January, as shown by the table:

September	$1,557,264,285
October	1,664,862,261
November	1,935,249,309
December	2,060,975,854
January	1,962,350,949
February	1,189,913,903

The drop in February should not be the cause of too much gratification, as there is an estimated $2,500,000,000 in informal contracts awaiting disposition through Act of Congress. The government's real need of funds, therefore, is obvious.

As regards the investment merits of the new bonds or notes, their short maturity will make them the most popular security on the list for the investment of cash reserve funds. It is argued that their short maturity and the extremely active market that they will enjoy will protect the bonds or notes from market vicissitudes, and that they will be regarded everywhere as a cash asset.

The passage of the Victory Liberty Loan law by Congress creates an additional $50,000 tax exemption that will prove valuable to many investors. Under the new act it will be possible for an individual who buys $6,650 of the new bonds or notes, to hold a total of $160,000 in war bonds in addition to the First 3½s, with entire exemption from surtaxes. The new exemptions are to carry, moreover, for five years and not for two, as in former bond acts.

New Books

Some Tests of Douglas Fir After Long Use. By Arthur C. Alvarez, University of California Publications in Engineering, Vol. 2, No. 2, pages 57 to 118. Published by the University of California Press, Berkeley, Cal. Price, 70 cents.

This comprises a report on a series of about 1,200 tests of Douglas fir timbers taken from the old City Hall of Oakland, Cal., after about 36 years' use. The conclusions reached are that Douglas fir, properly housed, does not decay and that the strength of this material is not appreciably changed by this long use. However, the modulus of elasticity for compression parallel to the grain is nearly doubled, while the strength of beams under impact is only about 86 per cent of that in new timber.

Letters to the Editor

Salaries of Railroad Officers

NEW YORK CITY.

TO THE EDITOR:

The editorial on recent resignations of high railway officers in the *Railway Age* of January 24, recalls an agitation of several years ago, at which time some people were complaining of the large salaries paid to the more important men in the transportation field. Sober thinkers knew, then as now, that such criticism could not be justified on any logical grounds, or with any due regard for the bigger and broader issues involved.

I once told a newspaper editor that a good railroad president was easily worth $100,000 a year to any company that expected to get anywhere. Nothing has occurred since then to change my view of the matter, but many things have tended to confirm it. The man who is worth a big salary will not work for a small one and would be a fool to do so.

With regard to the political view of the salary question, there is one point that has never been sufficiently stressed. This is the fact that the average public office-holder seeks a political career because he cannot earn a living in any of the recognized businesses or professions. To such a man, the petty salaries attached to the ordinary run of political "jobs" seem like a fortune, and it naturally follows that he has no idea of relative values in the business world. Impecunious himself, his view of the really big men of the country is narrow and envious, and his desire is to use his political position to injure them, if possible.

Instead of reducing the compensation to railroad officers, it should be greatly increased, and the liberality should go down at least as low as the office of division superintendent. A tactless or incompetent division superintendent can do the best of roads a great deal of damage. In fact, this office is entitled to far better men than it often receives, but the railroads, like other concerns, will only get what they pay for.

The day of the "rough-cut diamond" is over, and the managers of railroads must be gentlemen as well as officers. A man does not have to be a boor in order to be a railroad expert. As a matter of fact, most of the ill-mannered men that I have come across in the railroad field were of a distinctly inferior type even when judged by what they knew or didn't know of their chosen business. So much for that!

When the railroads are returned to their owners, the stockholders of the more prominent and prosperous lines should insist upon the election of capable general officers, pay them adequate salaries and instruct them to discharge every minor officer who does not measure up to the proper standards of his position. Peremptory and drastic treatment is the only cure for insolence and incapacity among divisional organizations. When we start reform, let us leave the $100,000 president where he is, and "get after" the pugnacious young mischief-makers who antagonize the public out on the road. Let us visit the top lofty young "super," and make him take his feet off the desk or get out! Needless to say, there is more in this remark than meets the eye.

ARTHUR CURRAN.

The International Railway Fuel Association will hold its eleventh annual meeting at the Hotel Sherman, Chicago, on May 19, 20, 21 and 22. The work of the convention will, as heretofore, be directed exclusively to the conservation of railroad fuel coal.

Compensation of Railroads Under Federal Control

Less Than Justice Done by the Administration in Its Interpretation of the Law Taking Over the Roads

By J. M. Souby
Solicitor, Kansas City Southern

WHAT MIGHT BE CALLED the official documents dealing with the compensation of railroads under federal control are five in number and consist of:

The President's proclamation of December 26, 1917.
The President's statement accompanying his proclamation.
The President's message to congress of January 4, 1918.
The Federal Control Act of March 21, 1918.
The standard form of contract, final draft of September 22, 1918.

It will be of interest to take up the various provisions of these five documents and see, first, to what extent the promises and recommendations of the President contained in the first three were sought to be made good by Congress in the Federal Control Act; and, second, to what extent the director general and his representatives have undertaken in the contract to give the railroads the full benefit of all that is granted or permitted by that act. For convenience, this inquiry will be conducted under separate, specific headings which are suggested by the subject matter involved and more particularly by the arrangement of the contract, as follows: the measure of the compensation itself, the question of maintenance of the property—tangible and intangible—during federal control, additions and betterments made thereto during such control, and miscellaneous matters which may be suggested in the course of our investigation.

The Compensation

The proclamation states that the basis of compensation for each railroad will be "an annual guaranteed compensation * * * equivalent, as nearly as may be, to the average of the net operating income thereof for the three-year period ending June 30, 1917." The statement contains a promise to recommend this basis to Congress, and the message does make such recommendation. The basis was adopted by Congress, and is embodied in the Federal Control Act (first paragraph of Section 1), with modification only (second paragraph of Section 1) with respect to the definition of operating income to include hire of equipment and joint facility rents and the requirement (third paragraph of Section 1) that the so-called war taxes accruing during federal control shall be paid by the railroads. The Contract provided (paragraph (d) of the preamble and paragraph (a) of Section 7), for the basis of compensation stipulated in the Act, with the additional modification (paragraph (f) of Section 4), which requires the railroads to pay all salaries and other expenses necessary to preserve their corporate existence during federal control, to protect their rights and carry out their obligations under the contract (paragraph (b) of Section 3), except such as may be specifically authorized by the director general, and the discretion of the latter in the premises is absolutely unlimited by the contract except as to a few specified expenditures which may be incurred in connection with the valuation of their properties under Section 19 (a) of the Act to Regulate Commerce.

This reduction of the stipulated compensation by the amount of expenditures which may be made by the railroads during federal control for corporate expenses of a character authorized by the commission's classification of accounts to be charged to operating expenses, and such as were actually incurred and so charged in their accounts during the test period, is contrary to the clear implication of the Federal Control Act, as well as being violative of all the utterances of the President dealing with this subject. In the second paragraph of Section 1 of the Act, it is provided "that any railway operating income accruing during the period of federal control in excess of such just compensation shall remain the property of the United States." Such "operating income" is defined throughout the act to mean the same thing and to embrace the same items of receipt and expenditure during federal control as it is made to mean and embrace during the test period, with the exception of the single item of "war taxes." Still more clearly, however, it is provided in Section 12 of the Act:

"That moneys and other property derived from the operation of the carriers during federal control are hereby declared to be the property of the United States. Unless otherwise directed by the President, such moneys shall not be covered into the Treasury, but such moneys and property shall remain in the custody of the same officers, and the accounting thereof shall be in the same manner and form as before federal control. *Disbursements therefrom shall,* without further appropriation, *be made in the same manner as before federal control and for such purposes as under the Interstate Commerce Commission classification of accounts in force on December 27, 1917, are chargeable to operating expenses or to railway tax accruals* and for such other purposes in connection with federal control as the President may direct, *except that taxes under titles one and two of the act entitled 'An Act to Provide Revenue to Defray War Expenses, and for Other Purposes,' approved October 3,* 1917, or any act in addition thereto or in amendment thereof, *shall be paid by the carrier out of its own funds.*"

One of the guarantees which the President in his statement says he will recommend to Congress is that the railroads, while under federal control, "shall receive a *net operating income* equal in each case to the average net income of the three years preceding June 30, 1917." It is fairly to be presumed that it was the congressional intent, expressed in the Federal Control Act, to provide for this guarantee, except only as specifically otherwise provided therein. Any sum of money paid to a railroad as compensation during federal control, out of which any of its own regular operating expenses remain yet to be paid, falls short by that much of being "net operating income."

In view of the complete separation of the railroad corporations from the operation of their properties which has been brought about by the director general, which, while permitted by both the proclamation and the act, seems yet to have been actually contemplated by neither, the necessity is undoubtedly presented for the exercise of some discretion by the director general as to what expenditures made by the corporations shall be allowed as expenses of operation to be borne by the government; but the contract, by failing completely to limit that discretion, fails by that much to *guarantee* to each railroad the full compensation which the proclamation and the act warrant it in expecting.

Moreover, the bare "standard return," without modification, is not held out by any of the first four documents referred to above as the maximum compensation which any successfully operated railroad may hope to receive while under federal control. The proclamation, after stating the general basis of compensation, adds:

"But nothing herein contained, expressed or implied, or hereafter done or suffered hereunder, shall be demed in any way to impair the rights of the stockholders, bondholders, creditors, and other persons having interests in said systems of transportation or in the profits thereof to receive just and adequate compensation for the use and control and operation of their property hereby assumed."

The statement also contains the following expressions:

"Investors in railway securities may rest assured that their rights and interests will be as scrupulously looked after by the government as they could be by the directors of the several railway systems * * * I am entirely confident that the Congress will be disposed in this case, as in

others, to see that justice is done and full security assured to the owners and creditors of the great systems which the government must now use under its own direction or else suffer serious embarrassment."

And in his message to Congress, the President states:

"It is, I am sure you will agree with me, right and necessary that the owners and creditors of the railways, the holders of their stocks and bonds, should receive from the government an *unqualified guarantee* * * * that the several roads will receive under federal management such compensation as is equitable and just alike to their owners and to the general public. I would suggest the average net railway operating income for the three years ending June 30, 1917. I earnestly recommend that these guarantees be given by appropriate legislation."

It was apparently in an effort to make good the President's promise and to justify his confidence in it that Congress provided, in the sixth paragraph of Section 1 of the act:

"If the President shall find that the condition of any carrier was during all or a substantial portion of the period of three years ended June thirtieth, nineteen hundred and seventeen, because of non-operation, receivership, or where recent expenditures for additions or improvements or equipment were not fully reflected in the operating railway income of said three years or a substantial portion thereof, or because of any undeveloped or abnormal conditions, so exceptional as to make the basis of earnings hereinabove provided for plainly inequitable as a fair measure of just compensation, then the President may make with the carrier such agreement for such amount as just compensation as under the circumstances of the particular case he shall find just."

Of course, a matter of this kind cannot be expected to be covered by a standard form of contract which is intended for application to all railroads generally, and until each individual contract is finally agreed upon we cannot know definitely to what extent the director general has given each railroad the full benefit of the foregoing provision of the act. If anything is to be inferred, however, from the attitude heretofore manifested in his negotiations with the railroads and from the contracts which have actually been entered into up to the present time, the standard return, as defined and modified by the standard form of contract, is the maximum which can be expected by any railroad which was in successful (i. e., solvent), operation during the test period. Of the various facts mentioned in the foregoing quotation from the act which might be taken into consideration in determining whether the standard return affords a fair, equitable and just measure of compensation, viz.: non-operation, receivership, recent capital expenditures not fully reflected in the earnings during the test period, and exceptional undeveloped or abnormal conditions affecting the earnings during that period, it is only the first two, non-operation and insolvency, which have as yet gained any special consideration at the hands of the government representatives. Non-operation is mentioned because it is only in connection with property actually under construction and not yet in operation during the test period that recent capital expenditures seem to be regarded as "not fully reflected" in the earnings of such period. Where such expenditures have been made on property that was actually in solvent operation during such period, they seem to be regarded always as so reflected, whether made prior to or during the test period or between the end thereof and the beginning of federal control. (See paragraph (c) of Section 4 of the contract.)

Maintenance During Federal Control

Tangible Property.—In giving the first quotation from the proclamation, in order to confine it to the specific subject under consideration, we purposely omitted the very significant words relating to maintenance. The full text at the place in question reads:

"The director shall, as soon as may be after having assumed such possession and control, enter upon negotiations with the several companies looking to agreements for just and reasonable compensation for the possession, use, and control of their respective properties on the basis of an annual guaranteed compensation *above accruing depreciation and the maintenance of their properties* equivalent, as nearly as may be, to the average," etc.

The following is one of the "definite guarantees" which the statement promises will be recommended that Congress give the railroads:

"First, of course, that the railway properties will be maintained during the period of federal control in as good repair and as complete equipment as when taken over by the Government."

The President says in his message:

"It is, I am sure you will agree with me, right and necessary that the owners and creditors of the railways, the holders of their stocks and bonds, should receive from the government an *unqualified* guarantee that their properties will be maintained throughout the period of federal control in as good repair and as complete equipment as at present"

The fourth paragraph of Section 1 of the Act reads in part as follows:

"Every such agreement shall also contain adequate and appropriate provisions for the maintenance, repair, renewals, and depreciation of the property, for the creation of any reserves or reserve funds found necessary in connection therewith, and for such accounting and adjustments of charges and payments, both during and at the end of federal control as may be requisite, in order that the property of each carrier may be returned to it in substantially as good repair and in substantially as complete equipment as it was in at the beginning of federal control."

If Congress had been content to permit the foregoing to stand without qualification as its disposition of the question of maintenance during federal control, it would thus have given the railroads not a whit more than was promised and recommended by the President. It went further, however, and made indefinite the otherwise definite guarantee contained in the quotation, by adding a proviso as follows:

"In making such accounting and adjustments, due consideration shall be given to the amounts expended or reserved by each carrier for maintenance, repairs, renewals, and depreciation during the three years ended June thirtieth, nineteen hundred and seventeen, *to the condition of the property at the beginning and at the end of federal control and to any other pertinent facts and circumstances.*"

The contract, on the other hand, goes a long way toward restoring the certainty destroyed by the foregoing proviso of the act, but such result is purchased wholly at the expense of the railroads. Disregarding entirely "the condition of the property at the beginning and at the end of federal control" and giving no consideration whatever "to any other pertinent facts and circumstances," or regarding all other facts and circumstances as wholly impertinent, it makes "the amounts expended or reserved by each carrier for maintenance, repairs, renewals, and depreciation during" the test period the absolute measure of the government's obligation in the premises. Reference is made to paragraph (a) of Section 5 of the contract, which reads as follows:

"During the period of federal control the director general shall, annually, as nearly as practicable, expend and charge to railway operating expenses, either in payments for labor and materials or by payments into funds, such sums for the maintenance, repair, renewal, retirement, and depreciation of the property described in paragraph (a) of section 2 hereof as may be requisite in order that such property may be returned to the company at the end of federal control in substantially as good repair and in substantially as complete equipment as it was on January 1, 1918: *Provided, however,* That the annual expenditure and charges for such purposes during the period of federal control on such property and the fair distribution thereof over the same, or the payment into funds of an amount equal in the aggregate (subject to the adjustments provided in paragraph (c) and to the provisions of paragraph (e) of this section) to the average annual expenditure and charges for such purposes included under the accounting rules of the commission in railway operating expenses during the test period, less the cost of fire insurance included therein, shall be taken as a full compliance with the foregoing covenant."

The adjustments provided in paragraph (c) of the same section, to which reference is made in the above quotation, are that in comparing the expenditures during the two periods allowances are to be made for any differences in the cost of material and labor obtaining therein. Paragraph (e) of the same section, to which reference is likewise made in the quotation, as that paragraph is apparently sought to be applied by the representatives of the government at the present time (see P. S. & A. Bulletin 5 of July 10, 1918), presents a much more serious qualification of the guarantee with respect to the maintenance of the property during federal control and its restoration to the railroad in as good condition as when taken over by the government than is contained in the above quotation. After providing that where railroad property is damaged or destroyed during federal control, otherwise than by public enemies, the director general shall have the option of restoring or replacing it or of reimbursing the railroad for

its value or the amount of its damage at the time of the loss, such paragraph goes on to provide:

"The foregoing parts of this paragraph are subject to the proviso that in case of loss or damage any additions and betterments made in connection with or as a part of the restoration or replacement of property damaged or destroyed and chargeable under the accounting rules of the commission in force December 31, 1917, to investment in road and equipment, shall be charged to and paid by the company."

As it seems to be sought to apply the foregoing provision in the accounting bulletin referred to above, the obligation of the government for property destroyed has no reference whatever to the value thereof at the time of its loss, but, whether the director general chooses to replace it (in kind or otherwise), or declines to replace it, the extent of his liability in the premises is the book value of the property, which means the amount charged to investment account on the books of the company, less any depreciation reserve which might be carried in its accounts, with respect to the property in question. On the other hand, it is sought to charge the company for the property used in replacing that which was destroyed at the actual cost of same at the time of the replacement, regardless of what its value may be relative to that which it replaces. In other words, it is sought to credit the railroad for property destroyed on the basis of pre-war prices and to charge it for all replacements of same at war prices. It seems hardly conceivable, however, that such a construction of the contract can prevail.

The contract, in one particular, however, even undertakes to go a step beyond what the President promised, or Congress granted, with respect to maintenance during federal control, and opens up to each carrier the possibility of having its property maintained during such period, and perhaps turned back to it at the end thereof in better repair and in more complete equipment than the company maintained it theretofore or might be able or willing to maintain it thereafter. The pleasure with which this possibility might otherwise be viewed by the railroads, however, is very materially mitigated by the certainty that it must be realized, if at all, at their own expense; for paragraph (b) of Section 5 of the contract provides:

"The director general may expend such sums, if any, in addition to those expended and charged under paragraph (a) of this section (subject to the adjustments provided in paragraph (c) of this section) as may be requisite for the safe operation of the property described in paragraph (a) of section 2 hereof, assuming a use similar to the use during the test period and not substantially enhancing the cost of maintenance over the normal standard of maintenance of railroads of like character and business during said period; and the amount, if any, of such excess expenditures during federal control shall be made good by the company as provided in paragraph (b) of section 7 hereof."

Intangible Property.—To a successful railroad, the most serious aspect of federal control is the possible effect upon its business of the manner in which its property may be operated by the government. Except perhaps by implication in some of the quotations which we have already given, we find nothing in any of the first four documents under consideration with reference to the maintenance of the intangible property of a railroad during federal control. The contract, however, as if with the purpose, generally laudable, of leaving absolutely nothing to implication, provides in paragraph (a) of Section 3, that the rental stipulated in paragraph (a) of Section 7 shall be accepted by the carrier as full compensation not only for the use of its property during federal control, but also for any and all loss and damage to its business or traffic by reason of the diversion thereof, or otherwise, which may be caused to it by the manner in which its property may be operated by the government.

The standard return of a particular railroad reflects, of course, the use of both its tangible and intangible property during the test period, and it might be willing to accept such operating results as fairly indicative of the proper amount to be received by it for the loss of the use of all of its property during federal control, but it would be actually plunging into the dark to accept such sum as also including fair and just compensation for losses which might result to it from the abuse of its property during such period. The government is interested in the intangible property only in so far as it may have contributed to the increased efficiency of the physical property at the time same is taken under federal control, and a wholly proper use of the physical property as a part of the unified system of all the railroads under federal control might well prove to be an abuse of the intangible property from the standpoint of the railroad when it comes back into possession.

During the test period, the railroad not only received the amounts used in computing the standard return, but at the end of such period may have been in the possession of a better property than it had at the beginning, as reflected in the increasing earnings during the last year of the test period. Is it fair to ask it to accept the standard return as full compensation for all losses which may be sustained during federal control before it is possible to know what the condition of its property, both tangible and intangible, will be at the end of that new indeterminate period? The contract has undertaken to the extent which we have already shown, to take care of this uncertainty so far as the physical property is concerned, but refuses absolutely to give the carrier any assurance with respect to the maintenance of its intangible property, at the same time precluding it from making any claim for loss on account of a failure on the part of the government to provide for such maintenance.

Additions and Betterments

Neither the President's proclamation nor his statement contain any reference to the question of additions and betterments made to the railroad property during federal control, one of the most important and troublesome of all the questions involved in the proposed contract between the government and the railroads. His message to Congress refers to it only very briefly, in the following words:

"Only under that authority (i. e., government administration) can new terminals be constructed and developed without regard to the requirements or limitations of the particular roads."

The second paragraph of Section 6 of the act, however, provides specifically that:

"The President may also make or order any carrier to make any additions, betterments or road extensions, and to provide terminals, motive power, cars and other equipment necessary or desirable for war purposes or in the public interest or in connection with the property of any carrier. He may from said revolving fund advance to such carrier all or any part of the expense of such additions, betterments," etc.

Section 4 of the act provides for additional compensation in the way of reasonable interest on the cost of all additions and betterments made by the railroads with the approval or by order of the President. These provisions of the act are embodied in the Contract, in paragraph (c) of Section 4, and paragraph (d) of Section 7.

The third paragraph of Section 6 of the act provides:

"Any loss claimed by any carrier by reason of any such additions, betterments, or road extensions so ordered and constructed may be determined by agreement between the President and such carrier; failing such agreement, the amount of such loss shall be ascertained as provided in section three hereof."

This important and valuable right given the railroads to make claims for loss on account of additions and betterments made at their expense by order of the director general, and have such claims determined in accordance with the procedure provided in Section 3 of the act, is materially affected and restricted by various provisions of the Contract. For instance, in paragraph (e) of Section 5 of the contract, as we have already seen, the railroad is required to pay for any additions and betterments made by the director general in connection with or as a part of the restoration or replacement of property damaged or destroyed, which are chargeable to investment account under the commission's accounting rules. Paragraph (h) of the same section then provides:

"If any question shall arise, either during or at the end of federal control, as to whether the covenants or provisions in this section contained are being or have been observed, the matter in dispute shall, on the appli-

cation of either party, be referred to the commission, which, after hearing, shall make such findings and order as justice and right may require, which shall be final as to the questions submitted and be binding on and observed by both parties hereto, except that either party may take any question of law to the courts, if it so desires."

Obviously, one of the main grounds upon which a railroad claims a loss on certain additions and betterments may well happen to be that they are for war purposes, and not for the normal development of the company, yet, instead of giving the railroads the benefit in such cases of the proceedings provided in the act, the contract provides in paragraph (b) of Section 7:

"In the event of a difference as to the fact whether additions and betterments are for war purposes and not for the normal development of the company, or as to whether an addition is a road extension, the question may, on application of either party, be referred to and determined by the commission."

In paragraphs (b) and (c) of Section 8, while it is provided that in case of failure of the parties to the contract to agree with respect to any claim of the railroad for loss accruing to it by reason of expenditures for additions and betterments charged to it during federal control, resort may be had to the procedure provided in Section 3 of the act, there is an additional proviso, however, which materially modifies the rights of the railroad and limits its recovery in all such cases. This proviso is that:

"No loss shall be claimed by the company and no money shall be due to it in respect of such additions and betterments upon the ground that the actual cost thereof at the time of construction was greater than under other market and commercial conditions; and for the purpose of determining such controversy the amount paid for any addition or betterment shall be deemed the fair and reasonable cost thereof and shall be taken as the basis for such determination."

If an assertion by a railroad that loss has resulted to it by reason of abnormal prices paid by the government for the additions and betterments under consideration would not afford a valid basis for a claim under Section 6, paragraph four, of the act, then the above provision of the contract is wholly unnecessary. On the other hand, if such assertion does furnish ground for a valid claim under that section, then the contract undertakes to give the railroads something less than is guaranteed them by the act. No one appreciates more than do the railroads the advisability and desirability, in writing contracts, of avoiding so far as may be possible all probability of litigation thereunder, and of stipulating so far as possible the amount of damages to be recovered in case of litigation. At the same time, no one better realizes the impossibility, in the case of ordinary contracts voluntarily entered into between the parties, of securing such results always at the expense of one party to the contract. So far as the provisions in question, of the proposed contract, accomplish these results, they do so wholly by concessions required on the part of the railroad.

From the foregoing discussion, it will be observed that about the only material provisions of the act for the railroads' benefit which are not sought in the contract to be modified outright to its disadvantage, or reduced to the very narrowest limits permitted by the terms of their grant, are those of Sections 2 and 3, which relate to the situation presented when no contract is made. Stated in another way, it will be difficult to find any substantial right or benefit accruing to the railroad under the Contract which is not, to some extent at least, less than that which is specifically granted or is clearly permitted by the act.

The attitude of the government which is reflected by the standard clauses of the contract, seems to be maintained likewise with respect to the provision of Section 2 of the act to the effect that, pending the making of a contract or in case of failure of all negotiations for a contract, the President may, nevertheless, pay the railroad up to 90 per cent of its standard return. This provision is, of course, merely permissive in its terms; but if, as seems to be obvious, its purpose is to save the constitutionality of the act, then it should be regarded as mandatory in cases where the railroad would otherwise, for lack of funds, be unable to contest its claims for compensation and thus be coerced into signing the contract offered by the government. Thus far, however, the representatives of the government have declined to offer assurance to any railroad that if it declines to execute the contract offered, it will receive any compensation whatever for the use of its property pending a proceeding under Section 3 of the act to determine whether or not it is justified in refusing to execute the document offered.

We do not propose to discuss the constitutionality of the act, but merely remark that such may well be doubted if full effect is given to the final sentence of Section 2, which provides that the acceptance of any of the benefits under that section shall constitute an acceptance by the railroad of all the provisions of the act. A railroad which finds itself unable to contest the validity of any of the provisions of the act without accepting benefits under Section 2, immediately finds itself precluded from such contest by its waiver of all claims of invalidity through its acceptance of such benefits.

At least one other matter of interest in connection with the act and the proposed contract is the question of the status of things after a railroad has originally declined to execute the agreement offered, has proceeded under Section 3 of the act and had its just compensation determined, we shall say finally, by the Supreme Court on an appeal from a decree of the court of claims. It doubtless will still remain for the railroad to secure a contract with the government into which shall be incorporated the amount of compensation thus determined in lieu of that originally offered. The question is whether, except for their ability to supply these figures in the blank spaces remaining in paragraph (d) of the preamble and paragraph (a) of Section 7 of the contract, the parties will be any nearer an agreement than they were before resort was had to the courts.

It is only in two instances that the act provides for resort to the procedure outlined in Section 3 to determine differences arising between the railroads and the government with respect to federal control. One is in Section 3 itself and the other is in Section 6. The latter refers to the disposition of claims for losses on additions and betterments made during such control, most of which must await the end of federal control for their determination. The first has reference only to the claim for just compensation, and while in the broad sense the question of just compensation embraces all matters covered by the contract, such as maintenance, additions and betterments, etc., as used in Section 3, it seems to be confined to the amount of rental *per se.* It is "all claims for just compensation not adjusted (as provided in section one)," that are to be so tried out. This would seem to refer only to the first two and the sixth paragraphs of Section 1, since other matters treated in that section, such as war taxes and maintenance, are dealt with therein as separate and distinct from the just compensation referred to in the first paragraph. Also, in Section 3, after providing for the proceedings before certain boards of referees, it is said:

"The President is authorized to enter into an agreement with such carrier for just compensation upon a basis not in excess of that reported by such board, *and may include therein provisions similar to those authorized under section one.* Failing such agreement, either the United States or such carrier may file a petition in the Court of Claims *for the purpose of determining the amount of such just compensation,* and in the proceedings in said court the report of said referees shall be prima facie evidence of the amount of just compensation and of the facts therein stated."

From the above quotation it would appear that after the finding has been made by the board of referees, the matters referred to in Section 1, other than the single one of just compensation, still remain the subject of negotiation between the parties, and it seems certain that nothing is to be litigated before the court which has not already been tried out before such board. It thus results that, as to some of the most important matters for consideration between the railroads and the government in the making of their contracts, no procedure is provided in the act for settling the differences that may develop between the parties.

New Plan for a Union Station at Cleveland, Ohio

Terminal Ordinance Project Ratified by People of That City Is Subject to Railroads' Approval

THROUGH THE RATIFICATION of an ordinance by a popular referendum the city of Cleveland has signified its approval of a new union station plan. This project is being promoted by the Cleveland Union Terminals Company, a corporation financed by local capital for the construction of a passenger station and freight terminal to be leased to the railroads entering the city. While neither the railroads nor the Railroad Administration are parties to the agreement, officers of the terminal company have assured the people of Cleveland that the railroads are favorable to the plan, and that it is expected to conclude agreements which will permit work to proceed soon on the fulfillment of the plan proposed.

The plan of the terminal company contemplates a passenger station for all through and local passenger trains of all of the steam railroads and interurban lines now entering the city, in addition to facilities for considerable further development of electric interurban service in co-operation with the steam roads. It is proposed to place the head house of the station at the southwest corner of the Cleveland Public Square, with the station tracks forming the base of a great "U," the two legs of which will form the approaches to the station on the opposite sides of the Cuyahoga valley The fulfillment of this plan involves a 3,500-ft. bridge with eight tracks across the Cuyahoga valley just west of the proposed station.

Suggested Design for the Passenger Station with a Two-Level Street Entrance

Supersedes Lake Front Plan

This project is an alternative for the plan for a passenger station on the lake front for which the New York Central, the Cleveland, Cincinnati, Chicago & St. Louis and the Pennsylvania Lines had previously entered into an agreement with the city. In 1903 plans were submitted to Tom L. Johnson, mayor of Cleveland, for the Mall, a municipal center involving a group plan for public buildings, with a recommendation that a plan including a railroad station on the lake front be adopted. In 1904 designs in conformity with this idea were started for a new courthouse and shortly afterward for several other public buildings. However, it was not until November, 1915, that a popular referendum, passed by a vote of 68,357 to 17,153, approved a contract ordinance for a union station, to be built in conformity with the city's plan for a civic center.

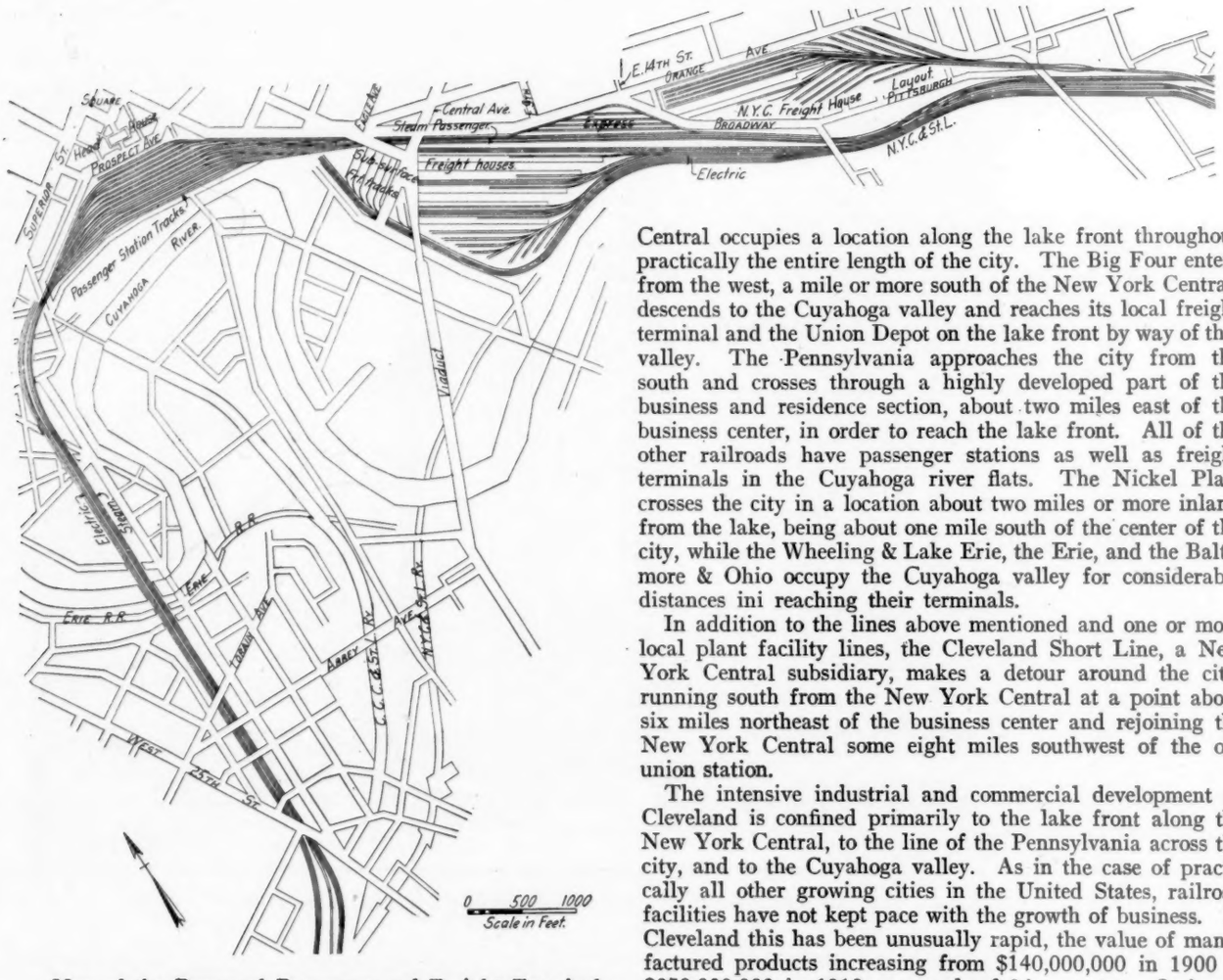
Under this contract the city agreed to sell to the railroads for $1,400,000 certain land at the north end of the Mall and to grant the railroads permanent easements over certain adjacent city-owned lake front property. The city agreed to spend the $1,400,000 to improve portions of the Mall, to pay a proportion of certain other expenses, and to acquire additional Mall lands. The railroads agreed to erect the station, to begin the construction of the station within six months after the deeds to the property had been delivered, and to complete the station within three years after the work was started. The city and railroads also agreed to co-operate in acquiring from the federal government rights in submerged lands and easements on government owned property.

The fulfillment of these conditions has been delayed and the only tangible evidences of progress are the completion of some public buildings and vacation of property for the Mall site. The new ordinance for the new terminal provides that

these three railroads are to be released of all obligations under the old contract as soon as they avail themselves of accommodations to be provided in the proposed public square terminal.

The proposed nullification of this earlier plan was the cause of considerable opposition to the new project. The fact that the city had made considerable expenditures along the lines of the old project was pointed out by a number of civic bodies who opposed the new plan, and by Bion J. Arnold, consulting engineer, Chicago, who was retained to make an investigation by the Cleveland Chamber of Commerce. He argued that the new plan should not be approved without studying the possibilities of providing accommodations for all the railroads on the lake front. However, notwithstanding this opposition the ordinance was ratified by a large majority.

The interests back of the new terminal plan are headed by O. P. Van Swearingen, president of the New York, Chicago & St. Louis and head of the Cleveland & Youngstown, which



Map of the Proposed Passenger and Freight Terminals with the Approaches

is a line projected in 1912 to afford rapid transit to a considerable suburban area east of the city. A portion of the last named line has been constructed, the most important feature being the $4,000,000 high level freight terminal built for the New York Central at Orange avenue and Broadway, which involved a 3½ mile approach line over the right-of-way of the Cleveland & Youngstown from a connection with the Cleveland Short Line Railway, a belt line owned by the New York Central.

The idea of the Union Terminal project was conceived in the course of developing further plans for the use of the Cleveland & Youngstown as a lead to freight and passenger terminals for the railroads entering Cleveland by way of the Cuyahoga valley. A common freight terminal was proposed in the vicinity of Broadway and Central avenue, with a stub-end passenger station in approximately the location now proposed for the new station of the Union Terminal Company. When this plan was submitted to the Railroad Administration early in 1918 it was suggested that a through station with accommodations for all the railways would be preferable, and work was accordingly started on such a plan.

The Railway Layout at Cleveland

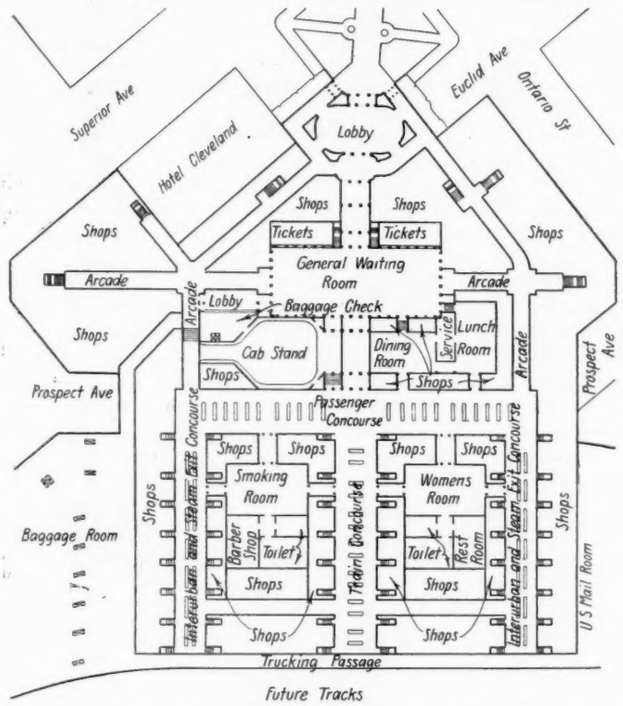
Seven steam railroads enter the city. The New York Central, the Big Four and the Pennsylvania Lines use a station on the lake front at the foot of Ninth street. The New York Central occupies a location along the lake front throughout practically the entire length of the city. The Big Four enters from the west, a mile or more south of the New York Central, descends to the Cuyahoga valley and reaches its local freight terminal and the Union Depot on the lake front by way of this valley. The Pennsylvania approaches the city from the south and crosses through a highly developed part of the business and residence section, about two miles east of the business center, in order to reach the lake front. All of the other railroads have passenger stations as well as freight terminals in the Cuyahoga river flats. The Nickel Plate crosses the city in a location about two miles or more inland from the lake, being about one mile south of the center of the city, while the Wheeling & Lake Erie, the Erie, and the Baltimore & Ohio occupy the Cuyahoga valley for considerable distances ini reaching their terminals.

In addition to the lines above mentioned and one or more local plant facility lines, the Cleveland Short Line, a New York Central subsidiary, makes a detour around the city, running south from the New York Central at a point about six miles northeast of the business center and rejoining the New York Central some eight miles southwest of the old union station.

The intensive industrial and commercial development in Cleveland is confined primarily to the lake front along the New York Central, to the line of the Pennsylvania across the city, and to the Cuyahoga valley. As in the case of practically all other growing cities in the United States, railroad facilities have not kept pace with the growth of business. In Cleveland this has been unusually rapid, the value of manufactured products increasing from $140,000,000 in 1900 to $270,000,000 in 1910, a growth of 94 per cent. Owing to the inadequacy of railway facilities the roads have been unable to develop suburban traffic, as a result of which an undue burden has been placed upon the electric interurban lines which are ineffective because of the slow speed made on the city streets. A total of 157 passenger trains enter and leave the city on the steam roads in 24 hours, of which 50 are on the New York Central, 24 on the Pennsylvania, 29 on the Big Four, 16 on the Baltimore & Ohio, 12 on the Wheeling & Lake Erie, 6 on the Nickel Plate, and 20 on the Erie. All of the existing downtown passenger stations are antiquated and most of them inadequate for present traffic.

Access to the Proposed Terminal

Under the plan of the Union Terminals Company, access to the proposed freight and passenger stations will be obtained by the use of about three miles of approach line to be constructed by the terminal company, in addition to the rerouting of trains over existing properties of the various railroads. The Erie, the Nickel Plate and the Big Four will have virtually direct communication with the terminal tracks,

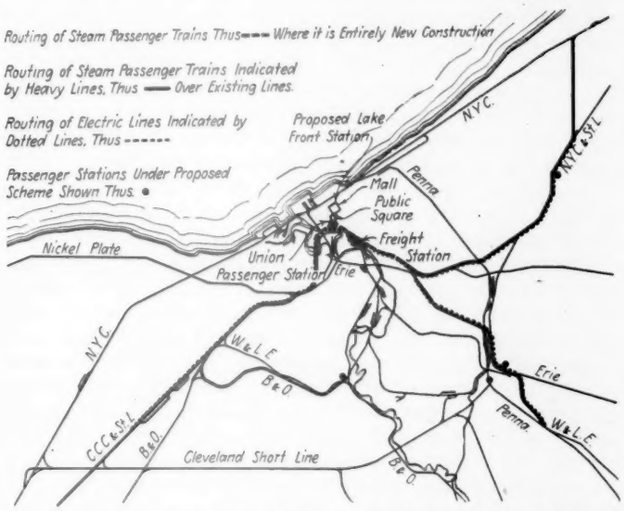


Proposed Plan for the Main Floor Level of the Passenger Station

while the Pennsylvania and the Wheeling & Lake Erie will use a route approximately four miles long over the Erie, but shortening their present routes from one-half to one and one-half miles. The New York Central will use the Cleveland Short Line and the Nickel Plate tracks from the east and

longer. In all other cases the distance by the proposed routing is the same as the old or shorter.

The contemplated electric interurban development provides for additional tracks adjoining those of the steam roads on three of the routes of entrance as shown by dotted lines on the map. By the construction of these lines all of the existing interurbans could be removed from the city streets and still provide for considerable further interurban development and thus increase the use of territory adjacent to Cleveland for residence and industrial purposes. Another pertinent feature of the ordinance is that the railroads will be required to use electric power for the operation of their passenger trains over

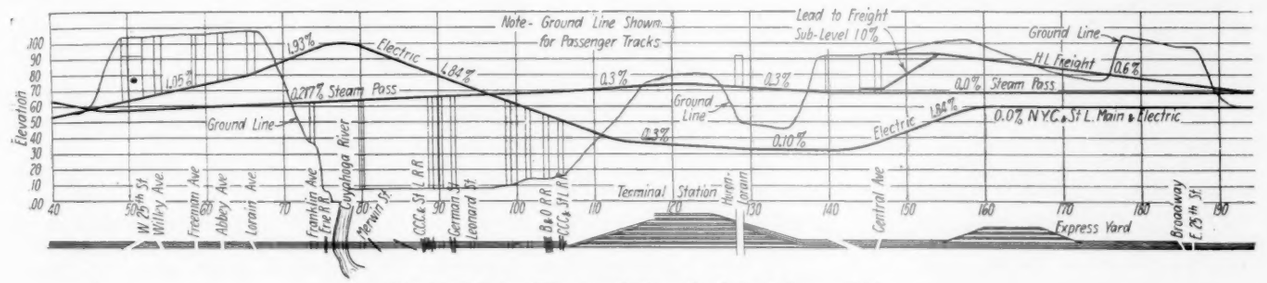


Proposed Routing of the Various Roads Entering Cleveland

the terminal lines within five years after the terminal facilities are placed in service.

Formidable Engineering Problem

The physical layout of the location of the terminal company's tracks and station is such as to present a formidable engineering problem. The east leg of the approach development, the freight terminal and the passenger station will occupy the rim of the bluff overlooking the Cuyahoga flats. The west leg consists largely of the 3,600-ft. bridge with the remaining portion depressed below the ground surface to afford



Profile of the Proposed Terminal and Approaches

the Big Four from the west, involving a total detour of 22 miles. The Baltimore & Ohio will use the Big Four for a distance of three miles, which will give the Sterling branch of the Baltimore & Ohio direct access, but will require the Akron line to operate in a reverse direction over about 3½ miles of the Sterling line.

In the case of the Nickel Plate the new route will be about one mile longer than the old one, for the New York Central it will be about 2½ miles longer than at present, and for the Akron line of the Baltimore & Ohio it will be about 3½ miles

overcrossings for the city streets and the tracks of the Nickel Plate and the Big Four. Notwithstanding the adverse location, the plans provide for approach grades to the station not exceeding 0.3 per cent, which is considerably less than the grades of some of the existing lines to be used as main routes to the terminal.

The plans for the viaduct over the valley contemplate separate structures for the steam and electric lines. The former will cross on a grade of some 64 ft. above the normal water level in the river, necessitating provision for bascule spans

at the river crossing to satisfy navigation requirements. For the electric lines structure the river crossing is placed at an elevation of 100 ft. above the river to permit of the use of a fixed span, but this necessitates approach grades on either side of nearly 2 per cent.

The Passenger Station

The passenger station plan provides for a building many stories in height, serving not only as a station structure, but also as an office building, retail shop, arcade and hotel. One unit, that of the hotel, is already completed and in use. The main entrance to the building is to be at the southwest corner of the Cleveland Public Square and will utilize a considerable portion of the southwest quarter of this area for developing the portal and approach ramp. Advantage of the topography will be taken to get a two-level entrance. The lower end of the square permits of a descending ramp to the main station floor level which is one story below the level of the streets. At the corner of the square there will be direct street entrances to the second floor level of the station building, but with ample provision for stairways down to the main floor. Another entrance to the second floor level is provided from Prospect avenue, which cuts through the station layout.

The main waiting room, about 100 ft. wide by 240 ft. long, will occupy the center of the block between Prospect avenue and the Square, with ticket offices, cab stand, restaurants and shops surrounding it. From this waiting room a main corridor will lead south on a 10 per cent descending ramp to a passenger concourse occupying the space directly under Prospect avenue. From this, three other concourses will extend to the south and occupy a level midway between the steam road tracks, which are to be located on an upper level, and the suburban tracks, which will occupy a lower level. The central concourse is to be used for passengers departing on the steam roads, and will have stairs on each side leading up to the steam-road level. The two side concourses are to be used for access to and from the interurban level. The interior areas on the concourse level will be devoted to space for a smoking room, a women's waiting room and toilet facilities, as well as a considerable number of arcade shops. To the east and west of the concourses, areas will be provided for mail and baggage rooms, respectively, with elevators communicating with the two track levels.

The ultimate development for the station tracks of the steam lines will be 30 tracks, but half that number is considered adequate for the needs of the present and immediate future. The average length of platform is about 1,000 ft., of which about 200 ft. at each end will be on the approach curves. The development on the interurban level will be somewhat smaller than on the steam road level.

The Freight Terminals

As in the case of the passenger station, the plans for the freight terminals provide for an elastic development. The ultimate provision is for a series of multiple story freight houses, express buildings and warehouses extending along the west side of Broadway from the passenger station to the vicinity of the New York Central high level station. The track layout for the freight station is shown on the map. Freight houses for the various roads are to be located between Central avenue and Fourteenth street. These will be provided with tracks and driveways on the level of Broadway with a team track to the south on this same level. Between Eagle avenue and Central avenue a series of multiple-story warehouses are planned, to be served with tracks about 20 ft. below the level of those for the freight houses. One unit of this group has been completed and is now in use. The lead to these tracks is on a level with the proposed electric line tracks on the extreme outside of the layout, while the lead to the station for the steam roads will occupy a level midway between those of the surface freight houses and the subsurface levels, and immediately adjacent to Broadway. Provision for handling express is contemplated along Broadway near Fourteenth street, with tracks leading off the passenger approach tracks.

The plans for the proposed terminal were developed under the direction of W. E. Pease, chief engineer of the Cleveland Union Terminals Company, Cleveland, Ohio, subject to criticism and suggestion by a committee of engineers appointed at the direction of A. H. Smith, regional director of the Eastern region, by each of the roads involved in the plan.

Orders of Regional Directors

FREE PASSES TO STEAMSHIP COMPANIES.—Supplement 14 to Order 109 of the Southwestern regional director gives authority for continuing past practice in the issuance of exchange trip transportation with independently operated steamship companies. The Northwestern regional director, by Supplement 46, issues the same notice.

Prohibition of Smoking in Mail Storage Cars.—Order 174 of the Southwestern regional director quotes a postal regulation issued by the postmaster general, applicable to railroad employees when their duties require them to be in mail storage cars, which states that no person shall smoke or carry lighted cigars, cigarettes or pipes in mail storage cars while cars are being loaded or unloaded or while in transit.

Freight Car Distribution.—Order 175 of the Southwestern regional director gives instructions for the relocating of cars in accordance with Circular 27 of the director of the Division of Operation, dated February 15. These instructions are similar to those of the Northwestern director, noticed last week. Railroads desiring the return of certain cars for rebuilding or application of betterments must submit request to the regional director, who will arrange the necessary details with the Mechanical Department and the Car Service Section of the Railroad Administration.

Rental Charge—Locomotives.—The Southern regional director in Circular letter No. 429 says that from February 20, the rental charge for locomotives will be one mill per pound of tractive effort per day, with a minimum of $15 a day.

Color Blindness.—The Eastern regional director has sent to the federal managers, for the benefit of the surgeons of the railroads, copies of Public Health Bulletin No. 92, entitled "Color Blindness," prepared by Dr. George L. Collins, and issued by the Treasury Department. Dr. Collins says that the classes of color blind persons which should not be permitted to serve as trainmen are (1) those possessing a color perception containing three or less units; (2) those possessing a greater number of units than three who have the red end of the spectrum so shortened as to prevent the recognition of a red light at a distance of two miles; and (3) those with a central scotoma for red and green.

Standing Orders from Consignees.—The Eastern regional director, file 5600-19A600, directs all federal managers to adopt, if not already in force, the rule that freight shall be delivered only to the consignee, or to the person or persons named in a written order. From business houses, the local freight agent should have a standing order containing the name or names and signature or signatures of the drayman or other person or persons to whom goods are to be delivered. Similar orders have been issued by the Central Western and the Northwestern regional directors.

Loss and Damage.—The Eastern regional director, file 5600-19A596, sends to federal managers the result of a study, on one of the Eastern roads, of the freight claim situation in the year 1918. Unlocated loss of entire packages accounts for 25 per cent of all freight claim payments, an increase of over 100 per cent over the preceding year. The principal causes are named. At points common to two or

more roads, the agents should maintain a regular exchange of over and short information. Furniture, glass and certain other commodities are constantly subject to excessive damage; damage to these and to perishable commodities is a matter requiring constant study. The duty of getting shippers to pack goods more securely ought to be attended to by the freight agent at the time of shipment, rather than by the claim department. Failure to attend to reicing, when cars are behind time, and failure to take special care at times of extreme low temperature, are among the causes of loss to perishables. Many other details are discussed. Federal managers are requested to take such action as may be deemed necessary and to send to the regional director copies of any instructions which they may issue.

Studies of Traffic Conditions.—The Eastern regional director, file 2000-16-201A598, calls on federal managers to supplement their reports of traffic conditions made last December, with advice as to how actual conditions have confirmed the estimates then made; and if at variance, how and to what extent. A new report is called for at this time, outlining the prospects as to business up to July 1, next, and also for the six months next following thereafter.

Locomotives in Service.—The Eastern regional director, file 1200-4-56A597, calls for a statement showing the number of locomotives in service on October 1, 1918, showing, for each class, the different weights on drivers. This is wanted for the Board of Railroad Wages and Working Conditions.

Chinese Alien Passengers.—The regional director, Eastern region, by file 1600-115A599, advises federal managers that carriers under federal control need not furnish the bond heretofore required as a condition precedent to transporting Chinese aliens through the United States. The carrier must strictly comply with the regulations of the Bureau of Immigration, and evidence that the passenger has made his trip within the prescribed time must be laid before the immigration officer at the proper port in due season. If a Chinese alien passenger should escape while in transit the fact must be reported at once, and any officer or employee permitting such escape will be disciplined.

Shipping Day Arrangements.—The regional director, Eastern region, by file 2000-7-9A604, advises that shipping day plans have been made out for the principal common points, and that federal managers should now appoint committees to work out these plans for local stations. These committees should consult freely, as may be necessary, with district chairmen, or with G. C. Woodruff, regional chairman, New York City.

Estimates for New Ties.—The regional director, Eastern region, by file 1800-83A605, calls attention to the fact that the requirements of the several roads for new ties for 1919, as received at Washington, indicate renewal programs far in excess of the average renewals during the test years; this, presumably, because of the necessity for restoring the normal stock on hand. Roadmasters, or supervisors, must make careful personal inspection of the track so as to see that no ties are replaced which can be carried over another year, while still keeping the tracks in safe condition.

Free Lighterage, New York.—Beginning April 1, the free lighterage of domestic carload freight at New York harbor will be resumed; but shipment can be made only under the system of permits now in force. Permits will be issued by the Freight Traffic Committee, 141 Broadway, New York City. Lighters are still in pressing demand for export traffic and consignees, to get the benefit of the new arrangement, must be prompt in unloading.

Number of Employees to Be Reported Monthly.—The regional director, Eastern region, by file 1801-124A606, gives instructions for the sending of monthly reports, beginning with February, to W. J. Cunningham, Washington, showing the number of employees in service on the 16th day of each month, with the number of days or hours worked, the compensation, the class—which of the 68 classes prescribed by the Interstate Commerce Commission—and figures by which to make comparison with the same month of the preceding year.

Posters of the Complaint Bureau.—The Southwestern regional director, in order 176, instructs that posters relative to the bureau for suggestions and complaints should be displayed in waiting rooms, consolidated ticket offices, smoking and wash rooms in Pullman cars, and in coaches or chair cars where smoking and wash rooms are provided, but not in coaches or chair cars having neither smoking rooms nor wash rooms apart from the toilets. These posters must not be displayed in the body of any car nor in the toilet rooms. The new posters are to be substituted for those previously provided for distribution.

Daily Situation Report.—Circular 190 cancelling circular 29 of the Southwestern regional director, requires all roads to furnish a daily telegraphic SWD No. 2 report to cover only loads delayed or held 48 hours or more. This report will take the place of the CD-1 report. Code letters are given for the number of loads on hand awaiting movement on account of disability of the owning road, principal cause of delay, prospects for reducing accumulation in the next 24 hours, number of loads held for export and coastal boats, number of loads held at destined points on own line on account of formal embargoes, number of loads held for connections on account of their inability to accept, and any important general conditions on the line not included in the above. Unless there is a total accumulation of 200 loads or more on any one road, no additional information other than the first item for which there is a code letter need be sent.

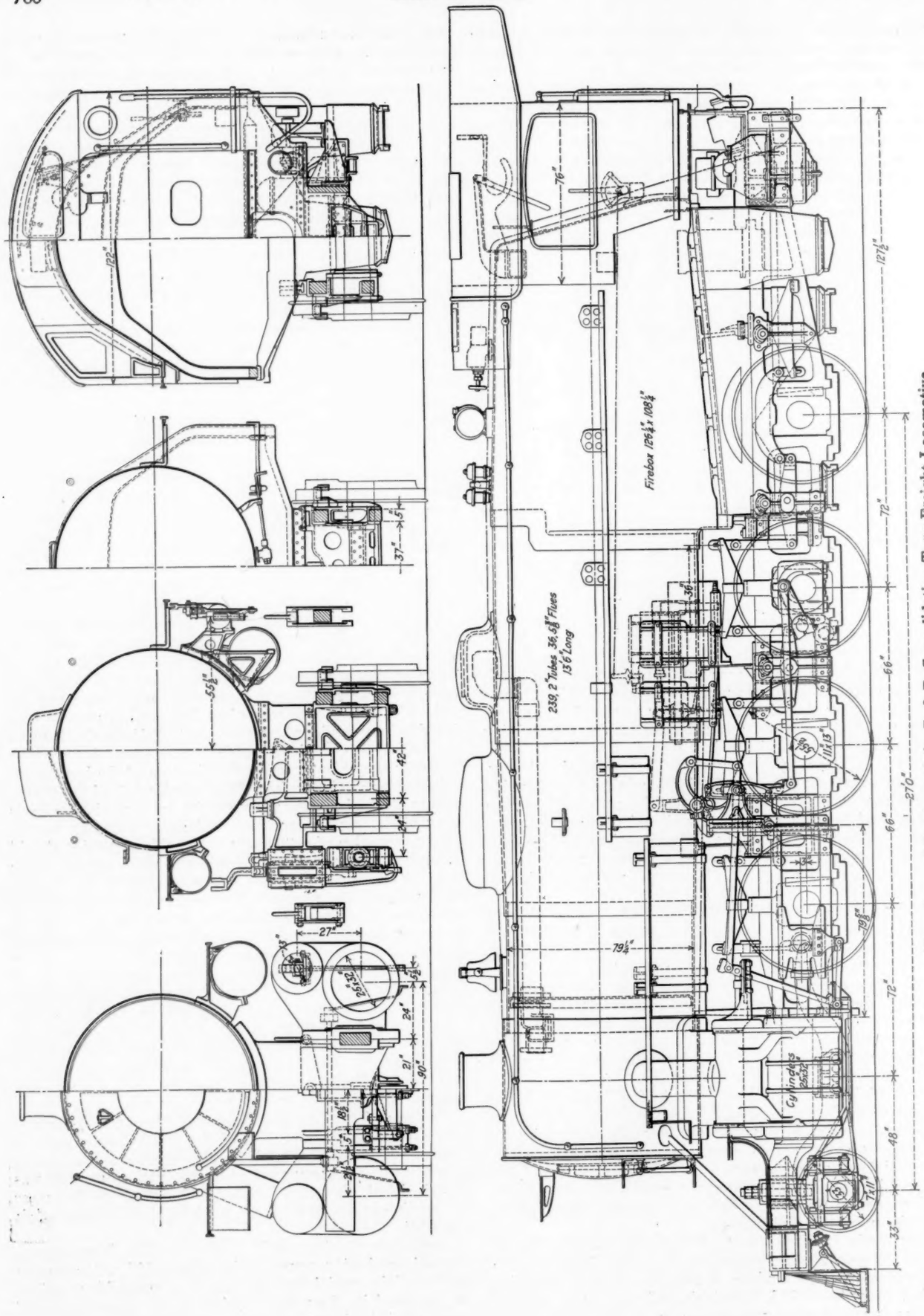
Eastern Car Pool Gondolas.—The Northwestern regional director in Freight Car Distribution Notice 8, cancelling Notice 2, states that roads which are members of the Eastern Coal Car Pool will now accept current home delivery of open top cars of their ownership from roads not members of the pool. Flat bottom coal cars of pool ownership may be continued in local service where convenient. Self-clearing hoppers and mill type gondolas should be sent home, but may be loaded as convenient to or in the direction of the home road.

Protection of Cotton from Fire.—Order 178 of the Southwestern regional director discusses the question whether roads using oil burning locomotives need apply stripping to cars for the protection of cotton, or whether this protection should be applied by a coal burning road upon receipt of the cotton from an oil burning road. It is held that the originating carrier should do whatever is necessary to cars to protect cotton and similar commodities in transit, as it would not be practicable to depend upon a connecting or intermediate road to furnish such protection.

Distribution of Automobile Cars.—Supplement 1 of Freight Car Distribution Notice 6 of the Northwestern regional director directs that 36-ft. automobile cars shall hereafter be moved east empty (except from territory west of the Missouri river) the same as automobile cars of larger size. It is imperative that the east-bound movement of automobile cars be expedited as much as possible, and the situation followed vigorously to prevent misuse or delay.

Uniform Method for Handling Hog Shipments.—Circular 191, cancelling Circular 149 of the Southwestern regional director states that on March 12, the embargo and allotment plan governing the movement of hogs to various markets was entirely lifted, therefore Circular 149, issued on December 24, outlining the method of handling hog shipments, is cancelled.

Storehouse Devices and Practices.—The Northwestern regional purchasing committee in bulletin 125 calls attention to a list of the special appliances, devices, profitable practices, etc., reported by the various regions to the stores section of the Central Advisory Purchasing Committee.



Elevation and Sections of the P. & R. Consolidation Type Freight Locomotive

Large Consolidation Type Locomotive for the P. & R.

With Tractive Effort of 61,260 lb. and Small Drivers, They Are Adapted to Heavy Drag Service

THE PHILADELPHIA AND READING is now receiving from The Baldwin Locomotive Works a consignment of Consolidation type locomotives which are notable for their weight and hauling capacity, and also because they are the only engines built to a railroad company's design to be included in the 1,430 locomotives ordered last year by the Railroad Administration.

In the table will be found a comparison of the leading dimensions of these locomotives with the first Baldwin Consolidation type built for the Philadelphia & Reading:

Date built	Cylinders, in.	Drivers, diam., in.	Steam pressure lb. per sq. in.	Grate area, sq. ft.	Water heating surface, sq. ft.	Superheating surface, sq. ft.	Weight on drivers, lb.	Total weight, lb.	Tractive effort, lb.
1880.....	20 x 24	50	120	76	1,357	...	90,000	104,000	19,600
1918.....	25 x 32	55½	200	94.9	2,655	575	250,800	281,100	61,200

The locomotives built in 1884 had boilers of the Wootten type, equipped for burning fine anthracite, and this same type of boiler in a somewhat modified form and of greatly enlarged dimensions, is used in the new design. The fuel generally used today consists of a mixture of fine anthracite and bituminous coal, and this is burned on a rocking grate, instead of on a combination of water tubes and pull-out bars, as applied to the earlier locomotives.

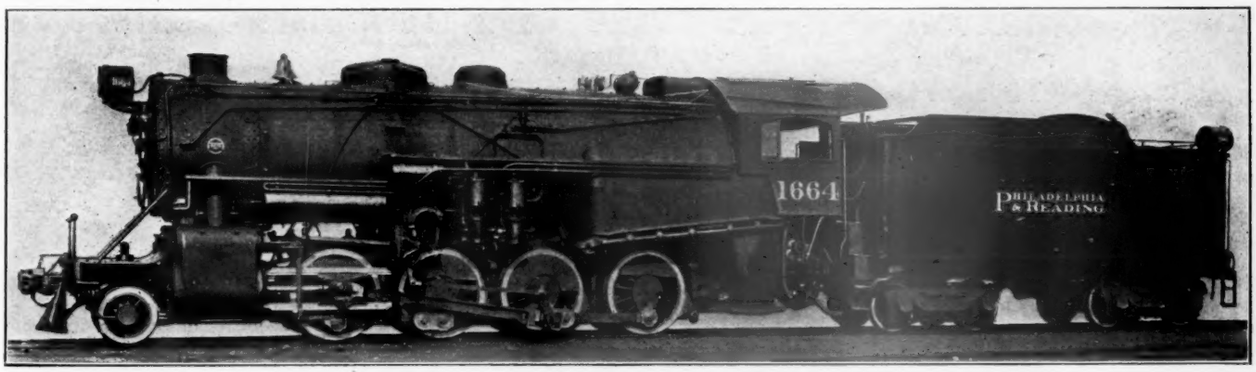
The new locomotives are designed for heavy drag service, and are in many respects similar to a group of Mikado type locomotives which preceded them. In consideration of the kind of fuel used, however, and the relatively small diameter of the wheels, a firebox of sufficient depth can be placed above the rear drivers without raising the boiler center to an excessive height. In the new Consolidations, the boiler center is placed 9 ft. 7½ in. above the rail.

In one of the tables will be found a comparison of the principal dimensions and ratios of the Consolidation and Mikado types. It will be seen that the new locomotives have smaller driving wheels and lower boiler pressure than the Mikados, but the cylinders are one inch larger in diameter and they have a starting tractive effort almost 4,000 lb. greater than the Mikados. It is evident that there is a considerable sacrifice in heating surface, there being eight less superheater units and 20 less tubes, which are 4 ft. 2 in. shorter than those in the Mikado type boiler. The difference in grate area is less marked. For heavy drag service, however, high tractive effort at slow speeds is the controlling factor rather than high sustained horsepower capacity.

COMPARISON OF P. & R. CONSOLIDATION AND MIKADO TYPE LOCOMOTIVES

Type	2-8-0	2-8-2
Tractive effort, lb.	61,260	57,320
Total weight, lb.	281,100	329,300
Weight on drivers, lb.	250,800	246,600
Diameter of drivers, in.	55½	61½
Cylinders, diameter and stroke, in.	25 by 32	24 by 32
Steam pressure, lb. per sq. in.	200	225
Heating surface, total evap., sq. ft.	2,655	4,224
Heating surface, equivalent, sq. ft.	3,518	5,264
Grate area, sq. ft.	94.9	108
Tractive effort x dia. drivers ÷ equiv. heating surface	966.5	669.7
Firebox heating surface ÷ equiv. heating surface, per cent	8.4	6.2
Grate area ÷ vol. cylinders	5.2	6.4

The boiler has a conical ring in the middle of the barrel, which increases the diameter from 79¼ in. at the first ring to 85⅝ in. at the throat. The firebox has a combustion chamber 39 in. long, and a brick wall 26 in. high is built across the throat of the chamber. Flexible bolts are used almost exclusively in the water legs, and four rows of expansion stays support the front of the crown. The firebox has two oval fire-door openings, and the doors are power operated. A Standard stoker is applied. The mud ring is single riveted, except at the corners, where it is increased in depth to take two rows of rivets. A four-hopper ash-pan is applied with the two rear hoppers back of the wheels outside the frames. The equipment includes a power grate shaker.



Heavy Consolidation Type Locomotive Built for the Philadelphia & Reading

The smokebox is comparatively short, and is equipped with the Economy front end arrangement, patented by I. A. Seiders, superintendent of motive power and rolling equipment of the railroad. A special feature of this arrangement is a breaker plate, which consists of a slotted plate fitted with deflecting vanes. This plate is placed under the superheater damper and in front of the tubes, and is very effective in breaking up the large sparks before they strike the netting. The netting frames are most substantial in construction, and the device has proved effective in preventing the setting of fires due to escaping sparks.

The cylinders are cast separate from the saddle, the right and left hand cylinders being interchangeable. They are made without bushings, and have barrel walls 2¼ in. thick. The cylinder castings and central saddle are made with suitable recesses through which the frames pass. The frame at this point has a single section, 5 in. wide by 13 in. deep—and the cylinder, frame and saddle, are held together on each side by a total of 59 horizontal bolts, 1⅛ in. in diameter. The saddle and cylinders are keyed to the frames at the front by vertical keys. The valve motions are of the Walschaert type, and are controlled by the Ragonnet power reverse gear.

The frames are of most substantial construction. They have a depth of 7½ in. above the pedestals, and the pedestal binders are held in place by three bolts in each end. The main pedestal wedges are self-adjusting. Strong transverse braces of cast steel are applied to the frames between adjacent pairs of driving-wheels. The brace back of the main drivers supports sliding bearings, which carry the front end of the mud ring. The rear end is supported by an expansion plate.

The cab, in accordance with the most recent practice for Wootten boiler locomotives on this road, is placed at the rear end instead of over the middle of the barrel. The sides of the cab are cut away in front in order to permit easy access to the stay-bolts.

Further particulars are presented in the following table of dimensions and data:

General Data

Gage	4 ft. 8½ in.
Service	Freight
Fuel	Hard and soft coal, mixed
Tractive effort	61,260 lb.
Weight in working order	281,100 lb.
Weight on drivers	250,800 lb.
Weight on leading truck	30,300 lb.
Weight of engine and tender in working order	462,000 lb.
Wheel base, driving	17 ft.
Wheel base, total	27 ft.
Wheel base, engine and tender	63 ft. 11 in.

Ratios

Weight on drivers ÷ tractive effort	4.1
Total weight ÷ tractive effort	4.6
Tractive effort × diam. drivers ÷ equivalent heating surface*	966.5
Equivalent heating surface* ÷ grate area	37.1
Firebox heating surface ÷ equivalent heating surface.* per cent	8.4
Weight on drivers ÷ equivalent heating surface*	71.3
Total weight ÷ equivalent heating surface*	79.9
Volume both cylinders	18.2 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	193.5
Grate area ÷ vol. cylinders	5.2

Cylinders

Kind	Simple
Diameter and stroke	25 in. by 32 in.

Valves

Kind	Piston
Diameter	13 in.

Wheels

Driving, diameter over tires	55¼ in.
Driving, thickness of tires	6½ in.
Driving journals, diameter and length	11 in. by 13 in.
Engine truck wheels, diameter	33 in.
Engine truck, journals	7 in. by 11 in.

Boiler

Style	Wootten conical
Working pressure	200 lb. per sq. in.
Outside diameter of first ring	79¼ in.
Firebox, length and width	126¼ in. by 108¼ in.
Firebox plates, thickness	Sides, back and crown, ⅜ in.; tube, ½ in.
Firebox, water space	Front, 5 in.; sides and back, 4 in.
Tubes, number and outside diameter	239—2 in.
Flues, number and outside diameter	36—5⅜ in.
Tubes and flues, length	13 ft. 6 in.
Heating surface, tubes and flues	2,359 sq. ft.
Heating surface, firebox†	296 sq. ft.
Heating surface, total	2,655 sq. ft.
Superheater heating surface	575 sq. ft.
Equivalent heating surface*	3,518 sq. ft.
Grate area	94.9 sq. ft.

Tender

Tank	Water bottom
Wheels, diameter	36 in.
Journals, diameter and length	6 in. by 11 in.
Water capacity	9,500 gal.
Coal capacity	15 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

† Includes combustion chamber.

War Situation and Service of European Railways

Physical Condition of British and French Lines—Service Has Deteriorated—Great Crowding of Trains

By Samuel O. Dunn,
Editor of the *Railway Age*

THE WAR IMPOSED heavy new burdens on the railways of all the countries involved in it, and at the same time made it impossible to maintain the physical properties as had been done before. It caused the private railways of Great Britain and France as well as of the United States to be taken under government control. It caused many of their most efficient employees to volunteer or be drafted for military service. These things produced marked effects upon the service and the physical condition of the railways.

To most of those who have used the service of American railways the deterioration of their physical condition has hardly been perceptible. There have been complaints regarding the service and regarding the decline in the efficiency of their employees.

For several weeks after the armistice was signed the writer traveled somewhat extensively upon the railways of Great Britain and France. While motoring along them, as well as riding upon them, he had opportunity to observe the effects of the war upon their physical condition. Since Great Britain and France were in the war much longer than the United States, and since a large part of the mileage of the French lines was actually within the zone of heavy fighting, the service and physical condition of the railways of Great Britain and France, especially the latter, show the effects of the war much more than have the service and physical condition of the railways of the United States. The writer was in both England and France, as well as in Germany and Switzerland, in 1914, having sailed from Liverpool for home only two weeks before the war began in Europe. Having returned there just before the armistice was signed, and been there several weeks after it was signed, he had opportunity to observe the effects of the war upon the British and French railways, and also to compare and contrast railway service in Europe both in time of peace and in time of war with railway service in the United States.

Comparison of European and American Service

Before the war the service of the railways of the leading countries of Europe was in some respects superior and in some respects inferior to that of the railways of the United States. The writer remarked after his first experience as a traveler in Europe that the most effective means the railways of the United States could adopt to cause the American people to stop criticising their service would be to give them all a free ride through Europe. The first-class service of the railways of Great Britain, France and Germany before the war was quite comfortable. The third-class service in Great Britain and the second-class service in France and Germany were about equal to our ordinary day coach service. But the American traveler missed many comforts and luxuries to which he was accustomed at home. There were no observation cars or buffet smoking cars. Many of the European passenger cars were without vestibules, making it impossible on many trains to move from one car to another. In such cases if the traveler wished to go to a restaurant car he had to wait until the train stopped, run along the platform to reach the dining car, and then when he had finished his meal wait until the train stopped and run back along the platform to the car

in which he had been riding. In rainy or cold weather this was not pleasant.

Practically all the European passenger cars are divided into compartments. The so-called "corridor" cars are designed like our compartment sleeping cars. The passenger enters at the end of the car and goes down the corridor to the door of his compartment. There is always a toilet at one end of the compartment car. These cars are quite convenient and satisfactory. There are many cars in Europe which are divided into compartments that extend clear across the width of the car, there being doors into the compartments on each side of the car. When the traveler gets into one of these compartments and the train starts he is locked in and cannot leave his compartment until the train stops. There are no toilet accommodations in compartments of this kind, which ordinarily seat six to eight people, and to the American they seem extremely inconvenient.

What seemed inconvenience and discomfort before the war would have seemed like convenience and comfort during the war and since the signing of the armistice. The writer on his recent trip was in a party whose members were guests of the British government. The government, being in control of the British railways, spared no effort to provide good service for the members of this party. Seats on the trains in Great Britain always were reserved, and in some cases special cars were provided. Even in France the British, French and American army officers who took care of the wants of the party, spared no effort to provide every comfort and convenience for it. Therefore, nothing that is said herein is said in a spirit of complaint, because we had nothing to complain about and were placed under lasting obligations; but we took note of conditions, and the conditions of travel for those who were not especially favored were far from pleasant.

Great Overcrowding of Trains

During the war it was necessary, and during the subsequent period of demobilization it has continued to be necessary, for the governments to use a large part of the passenger train equipment for handling troops. Furthermore, thousands of individual soldiers on leave were constantly traveling to and from their homes. Finally, during the war, the civilian population, especially in Great Britain, took to traveling more than ever.

In France a substantial part of the mileage of the railways became entirely unavailable for ordinary passenger service. About 45 per cent of the mileage of the Northern, one of the principal lines, was at one time in the hands of the Germans. Literally hundreds of miles of railway was partially destroyed by bombing and shelling. For example, before the war the Eastern railway rendered good service on its direct line from Paris to Rheims. This line was so largely destroyed that in order to go from Paris to Rheims it became necessary to go over the main line of the Eastern railway to Epernay and thence over a branch from Epernay to Rheims. Of course, there were periods of heavy troop movements when commercial passenger traffic on the northern and eastern railways of France had to be practically or entirely suspended.

The result of the various conditions was that in Great Britain the passenger trains became terribly overcrowded. All the people who could be put into them were put into the compartments, and oftentimes the corridors of the corridor cars had people standing in them. The conditions in this respect were worse in France. The crowding on most passenger trains was almost as bad as it is during rush hours on the elevated railways of Chicago and the subways in New York. It was not uncommon to see all the compartments in a French train crowded with people and the corridors jammed with them, either sitting on their baggage or lying on the floor. Those who have complained about the crowding of trains in the United States have complained about conditions which to those who have recently been in Europe seem by comparison anything but imperfect.

No Heat in Passenger Cars

One thing which every traveler from the United States noticed as soon as he entered a train in Great Britain was that there was no heat. The coal shortage, owing to the decline in the production of coal and to the necessity for shipping a large part of that produced to the Continent, was so serious that it was necessary as a war measure to operate the trains entirely without heat. A passenger from America who got into a British train and took off his overcoat soon found it expedient to put it on again, and soon became accustomed to keeping it on. It was still more comfortable to wear not only an overcoat, but a sweater in addition. Many Europeans traveled with rugs which they spread over their legs and feet. Even with all this protection one's hands and feet often got very cold.

This absence of heat was also noticed in every hotel bedroom and private house. It is a notable fact that although the British were sending to France a substantial part of the coal they produced, there was more heat in trains and hotels in France than there was in Great Britain. Even on trains in Scotland and in hotel rooms in Edinburgh and Glasgow there was no heat. To the American who has been accustomed to steam-heated trains, hotels and houses, the absence of heat at first was very uncomfortable and disagreeable. However, travelers soon got used to it and after returning to the United States found the superheated trains and hotels in this country even more disagreeable than the unheated trains and hotels of Europe.

The slowness of the trains in France as compared with their speeds before the war was at once noticed. There had been a marked reduction of train speeds in Great Britain, and an even greater reduction in France. Before the war it was possible to leave Paris at about noon and reach London at about seven o'clock in the evening. As a result of the war it took about this long to go from Paris to Boulogne. This reduction of speeds was made partly to enable the locomotives to haul more cars and partly, in France, because deterioration of the physical properties rendered it desirable. The operation of all trains at something approaching uniform speed rendered it possible to handle a larger traffic.

Remarkable Passenger Train Loads

The number of passengers carried per train on some of the French and British railways during the war would make an American railway manager open his eyes. It became nothing uncommon for the principal British railways to carry 800 passengers in a train, and there were cases where as many as 1,500 passengers were carried in a single train running as two sections. Troop trains on the railways of the United States during the war often handled 500 men, but it is doubtful if there have been any instances where so many persons have been carried on single trains in this country as have been carried on single trains in Europe. Of course, the trains which have carried these large numbers of passengers have not only been crowded but have contained large numbers of cars. It was not uncommon to see trains containing 15 to 20 cars.

The passenger cars in Europe are much lighter than in the United States, both because they are smaller, especially narrower, and because comparatively little steel is used in their construction. Those who have advocated, and even attempted to force by law, the universal use by our railways of all-steel cars may be surprised to learn that the all-steel car is practically unknown in Europe. All-steel cars have been advocated and generally adopted in this country as a measure of safety. The railways of Europe continue to use wooden cars, and at the same time many of them, especially those of Great Britain and France, have an accident record which the railways of America may well envy. Of course, when there is a serious accident over there the wooden cars are often crushed and sometimes catch fire with disastrous

results, but wrecks are relatively less frequent than here. This is principally due to the superior discipline of the employees. The speeds of trains before the war were quite as fast in England and France as in the United States.

Railways Have Stood Up Well

The railways of Great Britain and France were obliged during the war to reduce to the minimum their outlays for maintenance of track and equipment, and very little new equipment was bought. Neither the materials nor the labor required for adequate maintenance and replacements were available. The effects of these drastic economies are plainly visible, especially on the railways of France. In Great Britain stations, cars, and so on, look quite dilapidated as compared with their appearance before the war. This is partly due to the fact that it has been impracticable to get enough labor to keep things clean. In France the evidences of the destructive effects of war and of the inability to get labor and materials for maintenance and replacements are visible on every hand. In large areas the Germans destroyed the railway bridges, and these have been replaced only with temporary wooden structures. It was impossible to get enough glass, and many car windows which have been broken have not been repaired. The Germans bombed and shelled many railway lines which they were unable to take, and along such lines as that of the Northern from Boulogne to Paris, and that of the Eastern from Paris to Epernay, one constantly sees shops which have been partly destroyed by bombs, pieces of track which have been destroyed by bombs and repaired, and stations which have been hit.

The most remarkable thing about the condition of both the British and French railways is not that they show some of the effects of war, but that outside the zone of actual fighting they show the effects of it as little as they do. While the effects of inadequate maintenance of tracks and equipment are visible, the tracks ride remarkably well and the equipment is in remarkably good condition considering how little has been done to maintain them. The fact that they are in relatively as good condition as they are bespeaks the skill with which they were originally constructed and with which they were maintained up to the time of the war. The British use the term "permanent way" where we use the term "roadway and structures." The manner in which their track has stood up during the war justifies the use of that term. Nevertheless there has been great deterioration in the railways of both countries which it will take years to offset.

While the British and French people bore patiently with the deterioration of railway service during the war there has been no lack of complaint since the signing of the armistice because the service has not been restored to normal. The complaints in Great Britain have been especially numerous and loud. It has been explained, however, that it will be months before the service can possibly be restored to normal. In the first place, the railways are short of equipment and it will take a long time to provide the needed additional equipment. In the second place, the railways ever since the armistice was signed have had to handle many thousands of troops which have been in process of demobilization.

Advances in Passenger Rates

Both the British and French governments made special railway rates for soldiers who were traveling "on their own." In France these special rates were allowed to American soldiers. Therefore, the soldiers from the United States who have traveled in Europe probably have not thought much about the passenger rates they had to pay. As a result of advances in rates during the war, however, the rates which civilian travelers have to pay are relatively high. The first-class rate in Great Britain averaged before the war about three cents, and the third-class rate, on which a large majority of the people travel, about one and a half cents. Therefore, the advance of 50 per cent, which was made on January 1, 1917, made the first-class rate about four and a half cents and the third-class rate about two and a half cents.

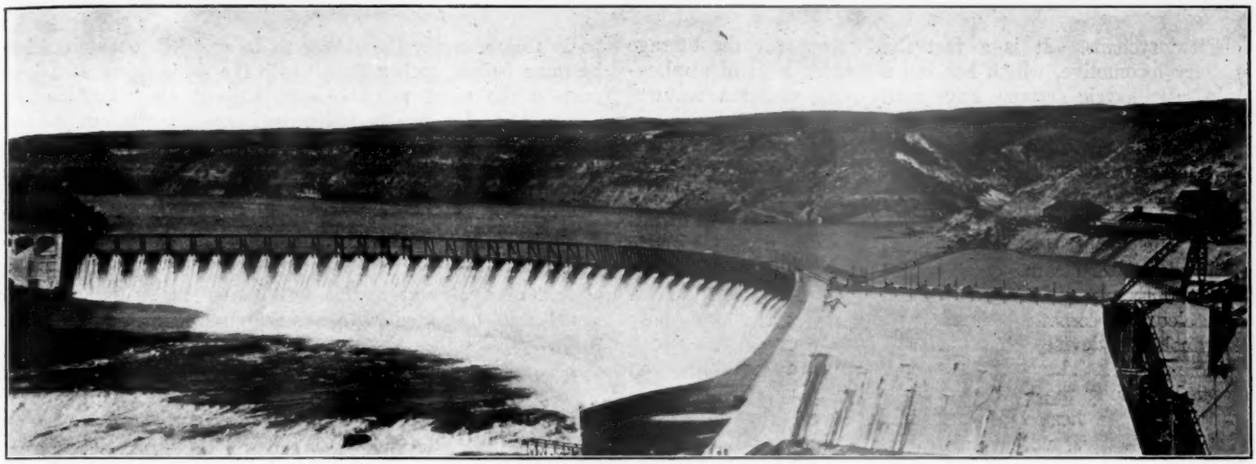
It is impossible to see how these rates can be reduced except at the expense of the taxpayers, whether government ownership is adopted or the railways are returned to private operation. The advance in passenger rates increased passenger earnings, but there has been no advance in freight rates, and the increase of operating expenses, mainly due to advances in wages, has been so much greater than the increase of earnings that at the present time, although no detailed official figures are available, it is safe to say that the British railways are paying out one dollar in operating expenses for every dollar they are earning. Premier Lloyd George said recently in a speech in the House of Commons that the increase of operating expenses of the British railways during the war was £90,000,000, or approximately $450,000,000. Since the net earnings before the war were only $250,000,000, it will be easily seen that British taxpayers already are paying a large deficit on the operation of the railways, and that to restore passenger rates to the old basis would largely increase this deficit. There have been large increases of both passenger and freight rates in France.

The service of the European railways before the war, as already indicated, was in some respects equal or superior to that of the railways of the United States. The trains in France and England were scheduled to make as good speeds as our trains and they were more regularly on time. With their lighter passenger equipment passengers were less frequently given violent shocks in setting and releasing the brakes on stopping and starting. The dining car service was table d'hote and many persons thought that the meals were better than the a la carte meals which were served under private operation in this country or the table d'hote meals which were served here under government operation. Most persons also liked the European system of issuing to passengers tickets giving the hour and the table at which they were to get their meals. The British sleeping cars, with their small compartment for each passenger, rendered a more satisfactory service than can be obtained on our sleeping cars, except in compartments and drawing rooms, and a passenger on the British railways can get a compartment by buying one railway ticket.

In many respects, however, our passenger service was superior to theirs before the war, and mainly because they went through four years of war while we went through only a year and a half of war, their service has deteriorated much more than ours. Probably it will take years to restore it to what it was before the war.

Will Government Ownership Be Adopted?

Whether government ownership actually will be adopted is not yet settled. The British government has announced that it intends to keep the railways two years longer at least, and that meantime a solution of the problem will be worked out. It has been positively stated by Winston Churchill, who is a member of the Cabinet, that the government has decided on nationalization. On the other hand, Lord Claude Hamilton, chairman of the Great Eastern Railway, recently issued a statement, saying that he had conferred with officers of the government and that they had assured him no final decision regarding the government's railway policy has been reached. All reports indicate that there is less probability of the adoption of a permanent policy of government ownership and operation in France than in Great Britain. The French got some experience when the government took over the Western railway in 1908 and assumed its operation, and they have not relished the effects either on expenses or service. The five large private railways in France are still under government control, but apparently an attempt is being made to work out a program of readjusting their expenses and rates so that they can be restored to private operation.



Great Falls Dam at Volta; Chicago, Milwaukee & St. Paul Electrification

The Real Problem of Railway Electrification*

Exponents of Electrification Are Learning to See With the Eyes of the Railroad Man

By Calvert Townley

ELECTRICITY NOW PERFORMS every railroad service previously rendered exclusively by steam locomotives and in every case does it better than it was done before. But in order to use electricity a large investment in equipment and installation must be made and electrification has proceeded slowly because railroad executives were not convinced that the advantages to be gained are always worth the cost.

The progress of electrification has also been impeded, first, before the war by the difficulty in financing, due to conditions other than the merits of electrification, and second, since the war began, because every one has been too busy to consider any work that could be deferred and because the government's taking over the railroads has created an unsettled situation not conducive to the investment of new capital for future returns. Now, however, there seems to be ground for hoping that these bars to progress will be removed in the not distant future so that electrification can be again studied on its merits, therefore our consideration of the subject is timely.

In reviewing the past twenty years' history of this question, I cannot escape the conclusion that we electrical men, and not our steam road colleagues are responsible for the slow progress made. We have not known enough about either the science or the art of railroading. Our belief in, and our zeal for our own profession has led us, albeit with entire honesty of purpose, to make more or less extravagant claims as to what we could do and to underestimate the cost of doing it. The inevitable reaction of mind which followed an accurate determination of facts of course disturbed confidence in our judgment. But if at times we have injured the cause of electrification by claiming too much, strange as it may sound, we have injured it a great deal more by not claiming enough.

Electrical engineers not having always been railroad men have been unable to study railroad problems as they should have been studied, that is to say with only real and not with any arbitrary limitations before them. It has been natural for the electrical man to ask the railroad man for a statement of the conditions he was expected to meet. It was equally natural for the railroad man to prescribe the conditions upon which his steam service was predicated. Under these circumstances the problem became largely one of replacing one sort of locomotive with another, and of balancing hoped-for economies in operation and maintenance on the one hand, against fixed charges for the additional investment required, on the other. Right there comes the mistake. A perfectly natural but a fundamental mistake, for which no individual or class should be censured but for which the unusual development of the art is responsible. We cannot blame railroad men for not being electrical engineers nor electrical engineers because they are not railroad men, but the progress of electrification has had to lag until both should be able to see, each with the eyes of both. It is only by combining the railroad man's knowledge of the fundamental requirements of his service with the electrical man's skill in applying electricity to perform that service that all the possibilities of any specific problem may be developed.

The electrification of a railroad is not simply the substitution of one kind of locomotive for another. It is far more than that. It is the adoption of a fundamentally different method of train propulsion It is conservative to say that, within the bounds of ordinary practise, electricity can furnish every train with all the pulling power that can be used. The limitations of the steam locomotive in this respect disappear and ruling grades rule no longer. A strictly limited motive power is replaced by one that is practically unlimited.

Kind of Equipment Not Important

There are a number of so-called "systems" of electric traction and heavy emphasis has been laid by the advocates of each upon its points of difference from every other. So much has been said about these differences and so little about the points of similarity as to create an entirely misleading impression. It is a fact that there are more kinds and types of steam locomotives in use many times over than there are

*A paper presented at the 348th meeting of the American Institute of Electrical Engineers, Boston, Mass., March 14, 1919. Copyright, 1919, by A. I. E. E.

electric systems. It is a fact that except for the storage battery locomotive, which has but a limited field of application, all electric systems have many more common features than differences. It is a fact that they agree on fundamentals and differ in detail only. Their costs may not be the same, their efficiencies may vary, but they all do their work and do it successfully and well. The possibility of unlimited electric power is a characteristic not of any one system but of all. It is due to basic differences between steam and electric equipment. A steam locomotive is a complete independent unit which not only generates but also utilizes its power. The electric locomotive generates no power at all. It is only a translating device receiving energy from an outside and a remote source. The electric power house always having much greater capacity than any one locomotive, can supply ample power for the heaviest train on the steepest grade. The steam locomotive, which carries its own power house with it, is limited to the capacity of its one boiler. By the multiple unit principle, as many electric locomotives as may be needed can be coupled together and operated in synchronism by one crew from any cab. Any required tractive effort can thus be exerted without slipping the wheels, without imposing undue strains on the rails or bridges and without increasing the number of engine crews.

Track Capacity Is Increased

The business of a railroad is to transport freight and passengers. I put freight first because on the average it produces 73 per cent of the revenue. Unlimited motive power permits longer trains and higher schedule speeds. On the Elkhorn grade of the Norfolk & Western the schedule speed was doubled. It cuts the operating cost by hauling more cars with the same or a smaller crew. The Norfolk & Western uses two electrics to do the work of three Mallets. These new opportunities at one fell swoop banish many of the railroad's time honored traditions. The traffic possibilities must be studied from a new angle and advantage taken of every facility. It is a new thought to realize that train length is limited not by motive power but by the yard tracks and length of sidings, or that all the trailing tonnage that the draw bars will stand can be hauled. Nor are these new limits fundamental. Sidings can be extended, draw bars can be made stronger, if it pays to do it. In a word electrification opens up tremendous possibilities of increasing the freight capacity of a road and without it being necessary to build additional tracks.

Aerial Rights Made Valuable

While not as important as freight, passenger traffic likewise comes in for its share in the widened horizon and the vanishing tradition. Unlimited power of course is available but the absence of combustion is another basic advantage. Smoke and cinders disappear. Tunnel operation loses its terrors. Unobscured signals permit normal speeds with undiminished safety. Projects like the Pennsylvania terminal in New York, depending entirely on submarine tunnel operation and previously impracticable, become immediately possible. Railroads owning valuable realty in cities can erect buildings thereon, where before smoky locomotives made any structure above the ground level impracticable. The aerial rights are now valuable. Multiple unit operation has in fact made suburban traffic. The rapid acceleration made possible by electric traction has directed attention to the equal value of rapid retardation and has quickened the study of braking accordingly; also of modified coach design to bring about the more efficient loading and discharge of passengers. These combined possibilities secure increased schedule speeds and attract patronage. The people not only get over the line in a shorter time but as a corollary more people get over it in the same time. Again it is seen therefore that in passenger as in freight traffic the ability to do something that could not be done before, rather than to do the same thing at a lower cost is the most valuable attribute of electrification, and again we find a greatly augmented capacity without the need of additional tracks.

It is not my purpose to make an exhaustive comparison of the relative advantages of steam and electric operation. That has been done often and well by others. What I have said about the expanding opportunities for electrified service is by way of illustration to emphasize my plea that the question should always be viewed in its broader aspect and not hampered and restricted within any narrower limitations than properly belong to it.

Complete Electrification of All Roads Impossible

I am going to assume, then, the broadest possible treatment and to suppose that every electrification project is to have its pros and cons most fully examined. The real and vital question then is, "How far will this lead us?" "To what extent may we expect complete electrification of all our roads?" Parts of a number of them have already been equipped. Many of these are numbered among our prominent roads, successful corporations which have had the advice of the most highly skilled executives and engineers, and which are progressive. The service performed on the electrified sections comprises practically every kind of railroad transportation. The Bluefield division of the Norfolk & Western in West Virginia is an example of an important coal road operating through the mountains. The Chicago, Milwaukee & St. Paul 440-mile main line, through Idaho and Montana, demonstrates what can be done by a transcontinental carrier on a large scale with through traffic, both freight and passenger. The New York, New Haven & Hartford 73-mile stretch between New York and New Haven shows how through freight and a heavy passenger traffic can be taken care of on the most congested four track section of an important eastern carrier and what is possible for complicated freight yard operation, while the New York Central and the Pennsylvania out of New York city are splendid examples of our greatest modern passenger terminal electrifications. There are, of course, many other electrifications, but even if there were not, those named are of a character to command the respect and attention of the railroad world. Now, every one of these projects has been successful. Every one has justified itself. Nearly every one in its present scope represents an extension of the zone initially electrified, the most convincing evidence possible as to what views the operating companies hold regarding these several projects. Railroad officials are generally glad to give others the benefit of their experience so it is reasonably safe to say that operating statistics are available covering long enough periods so that the results to be expected from any proposed undertakings may be predicated on established facts and not upon theories. In the light of present day knowledge, therefore, what answer can we make to the question, "Should all railroads be electrified?"

Taken together in 1910 there were in the United States 240,000 miles of railroad main line regardless of the number of tracks. Of this mileage approximately 1,250, or one half of one per cent, has been electrified or is today in process. The remaining 99½ per cent comprises of course, roads performing every variety of service. They range from the back country branch line built by some over enthusiastic promoter and now perhaps, operated as part of a large system, only because operation cannot be avoided and regularly contributing its annual deficit, up to the most important through arteries of travel upon which the commerce and industry of the nation depend. Every sort of community is served; every kind of railroading has its place in this vast aggregation of effort and the variables in the problem are so

multitudinous and their nature often so profound as to well daunt the courage of one who seeks to formulate them for incorporation in a general statement.

Fortunately or unfortunately, depending on the point of view, it has been my lot to have to deal with the electrification problem from both sides. At one period from the standpoint of an intimate affiliation with the development and manufacture of electrical apparatus and at another from that of one charged with official responsibility on the railroad's behalf. I am a thorough believer in the virtues of electrification and an enthusiast about the wonders which it can accomplish but I also have a keen appreciation of the almost infinite variations in the railroad problem and a very wholesome respect for the dollar. I do not believe that all railroads will ever be electrified. I am not sanguine even that all the tracks of any one really big system will be so equipped in our time. It is a question of economics, and the results will not justify the expenditures even when considered with such broad vision as that which guided the Pennsylvania in spending millions to put their passenger terminal in New York City without the prospect of a direct return. Electrification will increase the track capacity. But there are thousands of miles of railroad that have sufficient capacity now, frequently several times over, and where the wildest stretch of imagination fails to picture a future need of this kind. Electrification works wonders in suburban and interurban passenger service. I have ridden for hours across the western prairies without seeing a single town, much less a city where these advantages would count. Electrification effects marked economies in fuel, in maintenance, in labor and otherwise through a long list; but electrification calls for a heavy investment and unless these economies bulk large enough, the interest on such investment will wipe them out and turn the enterprise into a losing venture. I do not believe the cause of electrification is helped by undue optimism on the part of its advocates. Rather should there be an enlightened partisanship, enthusiastic where enthusiasm is justified but tinged with the sober conservatism of the man who has to put his own dollars to work.

Plenty of Work for Engineers

There need be no discouragement to the electrical engineer in the views just given, nor to the railroad man who has looked toward the new motive power for salvation. There are so many cases where electricity should be used, where its advantages are clear and conclusive, that once the railroads escape from the financial slough of despond in which they are now wallowing and are again able to get capital for their needs, there will not be enough engineers, there will not be enough electric factories in the country to serve them. Every big system has need of electricity somewhere. For some small roads it may mean the difference between solvency and bankruptcy. I electrified a short derelict line for the New Haven Road between Meriden and Middletown, long before given over into the one-train-a-day-annual-deficit class, and turned it into a good earner.

There can be no rule established. Generalities are sure to be misleading but electrification is now firmly intrenched and successful. It is recognized by railroads generally as an effective agency with great possibilities and one which is particularly valuable for certain specific purposes. Time alone will tell how broad its application is to be but I am confident we can await developments with tranquility assured that the art is in a healthy condition and that progress will be along the right lines.

Discussion

The paper was discussed by representatives of the General Electric Company, the Westinghouse Electric & Manufacturing Company, and a number of men representing railroads in the United States and Canada. All of those discussing the paper heartily endorsed Mr. Townley's attitude toward the problem and W. F. Murray of the Connecticut Light & Power Company outlined a plan for electrifying a large section, including lines on six eastern railroads. This plan has been given serious consideration at Washington. The substance of Mr. Murray's discussion was as follows:

Plan for Electrification Proposed

We must not selfishly think of the electrification of one or two large roads. It is very true that we may reap a great money interest from that electrification, but it seems to me that this is not the right way to go after this matter. We must, if we are going to make electrification a success in this country, get after many roads, and we must do that on a district basis. In 1914, I had the pleasure of discussing with one of our prominent electrical engineers, a plan for electrification which I think will appeal to you. It involved six roads, Hudson River, Lehigh Valley, Central New Jersey, West Shore, Erie and Pennsylvania.

It seems to me that there was at that time a magnificent opportunity of what may have been called the formation of a power and equipment company with the idea in mind that a standard equipment be used on these railroads for service in the metropolitan districts, for freight service and for switching service in the large terminal yards in that section and for the distribution of power to that district for those railroads. At that time the railroads were tremendously embarrassed as they are now in the matter of finances. Yet if a standard equipment could be produced, the finances could be taken from the embarrassed railroad hands and smoothed out by bankers who would have jumped at the opportunity, and taken care of the purchase and equipment. Of course, the power house which would furnish the power would be compensated for by their contract for power and such profits as they would make would easily put them in a position for the bankers to finance these buildings. The shifts that would be necessary to take care of this equipment could also be taken care of in a financial scheme, and so the proposition could be financed. In fact, I have discussed the matter with several people in New York, who were very much interested in it and it seemed that a serious consideration would be possible when the war broke out in 1914. Naturally, it was then impossible to talk of these things.

Government's Investigation for Transmission Line

We have been doing a very wonderful work for the government in connection with the investigation of a superior 150,000 volt power transmission line which would extend from Boston to Washington. The opportunity offered itself for development of large power stations at the mouths of mines, tidewater steam stations and water power stations. Into this transmission trunk line system therefore would be fed this highly economic power. You might say right away "what would be the advantage of such a line, and could we not on account of the very large stations we have developed produce power as economically, and therefore why go to this expense of investment of money in a superior power transmission line?

Our investigations show that with units of from 25,000 to 40,000 kw. we can safely figure on being able to produce a kw.-hour with something between ten and fifteen pounds of steam, and be sure of it. I venture to say that in the district between Boston and Washington the amount of steam required to produce a kw.-hour as applied to the railroads and to the factories, will average 25 to 30 pounds, and consequently there is offered an enormous saving in production. This, however, is not to pre-empt any stations in central districts that are merely contributing their quota.

This was seriously considered in Washington, and I do not

know but what you may have all noticed in the papers the plan which Secretary Lane has proposed which comprehends practically what I have tried to describe. There was submitted through the secretary-treasurer to the Appropriation Committee of the Senate, a bill calling for the investigation of this matter—a bill reading "This amount of money to be appropriated for the investigation of the economies to be obtained by a power generation and transmission system covering the district between Boston and Washington." On account of the great number of bills being held up in Congress, this, together with others, has been laid over, but it is to be hoped that the new Congress will appropriate a sufficient amount of funds to make this investigation.

I want to leave with you this thought. In discussing this matter of a superior power line with a number of engineers, I have not found a single dissenting voice. Some one may say that the idea is all imagination, but that is wrong. I must confess there is imagination in it: I think the man who has no imagination needs a guardian. Let us admit that there is some imagination. You must imagine a patent before you can make it. I claim that the scheme is practical. There is nothing in it that is impractical. Let us make the investigation and find out.

Do not let us get behind England, who is doing just this thing. We have as much area in this regional district as England has. If we have got to compete with the world's markets and maintain a world standard we must have some superior scheme by which these powers can be made and used.

Progress Toward Financing Railroad Requirements

Railroad Administration Borrows $50,000,000—Arrangements for Warrants and Acceptances Being Worked Out

THE IMMEDIATE PROBLEM of temporarily financing the obligations of the Railroad Administration to the railroads and to the equipment companies appears now to be solved except for the working out of details. Conferences have been held between the administration, Howard Elliott as head of a committee of the railway executives, and the bankers. The Railroad Administration is to issue warrants to the railroad companies for part of the amounts due them to enable them to meet interest and dividend payments, and it is proposed that the bankers loan railroad companies money on the security of these warrants. The railroad companies' own credit, where this is good, will also be used. This would leave the War Finance Corporation free to help the weaker roads.

The War Finance Corporation has loaned $50,000,000 to the Railroad Administration to replenish working capital in the hands of federal treasurers. This $50,000,000 represents all that the administration, itself, can get from the War Finance Corporation, but individual companies may secure loans.

The Navy Department has made a payment of $10,000,000 on account of the money it owes the Railroad Administration.

The War Department owes the administration about $100,000,000. Efforts are being made to collect some of this.

Equipment to Be Financed by Trade Acceptances

The plan by which the equipment builders and those who furnished the materials and specialties are to receive their pay for the cars and locomotives ordered by the Railroad Administration last year, in the form of trade acceptances running for 90 days and bearing interest, has been practically completed except for the arrangement of details which is in charge of a committee headed by F. N. Hoffstot, president of the Pressed Steel Car Company and including J. E. Dixon, vice-president of the Lima Locomotive Works, W. H. Woodin, president of the American Car & Foundry Company, and Mr. Pigott, president of the Pacific Car & Foundry Company.

As briefly reported last week, Director General Hines conferred on March 13 with a group of representatives of the car and locomotive companies to which the Railroad Administration owes money for equipment already delivered and will owe additional amounts for cars and locomotives to be delivered during the current year. A preliminary meeting was held in the morning and a second one late in the afternoon, which was also attended by H. B. Spencer, director of the Division of Purchases, and C. B. Eddy, associate director of the Division of Finance, after which the Railroad Administration issued a statement Thursday evening in substance saying that the director general is considering giving permission to the equipment companies to draw drafts on the director general for amounts due, the drafts to be accepted by the director general. The Federal Reserve Board holds that such drafts, running for not more than 90 days, are eligible for re-discount by the federal reserve banks at the prevailing rates of discount for trade acceptances.

It is estimated that the amount which will fall due to equipment and specialty manufacturers to June 30 will be $183,681,965. The question of whether the specialty manufacturers should draw direct on the director general or on the locomotive builders has not been decided.

A statement of the contractual obligations of the Railroad Administration to the car and locomotive builders as of December 31, 1918, which, incidentally, gives the unit prices paid for the various types of locomotives and cars ordered, is given in the following table, which has been filed in the record of the hearings before the Senate Committee on Interstate Commerce and appears in the printed reports of the hearings, having been inserted following Mr. Hines' testimony before the committee on February 3, 4, 5 and 6. It shows the make-up of the $286,000,000 which Mr. Hines has explained will become payable to the equipment companies during the year as fast as the cars and locomotives are delivered. A large part of this amount is payable in turn by the locomotive and car builders to the companies furnishing the materials and the specialties for the equipment. The statement is as follows:

THE STANDARD LOCOMOTIVE ORDERS RECAPITULATION.

Number	Type	Price	Amount
150	Light switchers	$36,029.00	$5,404,350.00
50	Light switchers	38,416.33	1,920,816.50
150	Heavy switchers	43,966.00	6,594,900.00
150	Heavy switchers	46,199.03	6,929,854.50
43	Light Pacific	50,867.00	2,187,281.00
25	Light Mikado	57,178.25	1,429,456.25
530	Light Mikado	53,619.00	28,418,070.00
150	Light Mikado	60,613.27	9,091,990.50
20	Heavy Pacific	53,924.00	1,078,480.00
35	Light mountain	56,995.00	1,994,825.00
217	Heavy Mikado	56,761.00	12,751,137.00
50	Heavy Mikado	63,686.90	3,184,345.00
5	Heavy mountain	61,929.00	309,645.00
150	Light Santa Fe	62,277.00	9,341,550.00
20	Light Santa Fe	68,918.16	1,378,363.20
50	Heavy Santa Fe	67,543.00	3,377,150.00
5	Heavy Santa Fe	73,395.81	366,979.05
100	Light Mikado	60,486.00	6,048,600.00
30	Light mallet	78,339.00	2,350,170.00
20	Heavy mallet	92,195.00	1,843,900.00
75	Heavy mallet	98,155.60	7,361,670.00
30	Consolidation	53,619.00	1,608,570.00
2,055			$114,972,103.00

CONTRACTUAL OBLIGATIONS, DECEMBER 31, 1918—CONTRACTS FOR 100,000 STANDARD CARS

RECAPITULATION

Number	Type	Price	Amount
20,000	C. G.	$2,697.20	$53,944,000.00
25,000	Hopper	2,916.67	70,416,750.00
25,000	D. S. box	2,918.88	72,972,000.00
25,000	S. S. box	3,050.05	76,251,250.00
5,000	70-ton	3,173.89	15,869,450.00
100,000		.....	$289,453,450.00
Balance due on locomotives			$74,370,918.62
Balance due on cars			212,266,942.37
Total			$286,637,860.99

Capital Expenditures Program to Be Reviewed

The entire program of capital expenditures for this year, including the carry-over from last year, is to be reviewed in the light of the financial situation caused by the failure of the railroad appropriation bill, and not only will new work not be started without further approval both by the corporate officers and the Division of Capital Expenditures but work already under way will be discontinued, except with their approval, except where necessary to insure safety or where it would cost more to stop it than to continue. This plan was

CONTRACTUAL OBLIGATIONS DEC. 31, 1918—CONTRACTS FOR 1,930 STANDARDIZED LOCOMOTIVES

Name and type	Number	Price	Amount	Total cost	Less payment on account	Balance due
American Locomotive Co.:						
Light Mikado	25	$57,178.25	$1,429,456.25			
Light switchers	130	36,029.00	4,683,770.00			
Heavy switchers	75	43,966.00	3,297,450.00			
Light Pacific	10	50,867.00	508,670.00			
Light Mikado	287	53,619.00	15,388,653.00			
Heavy Pacific	10	53,924.00	539,240.00			
Light mountain	20	56,995.00	1,139,900.00			
Heavy Mikado	130	58,761.00	7,638,930.00			
Heavy mountain	3	61,929.00	185,787.00			
Light Santa Fe	75	62,277.00	4,670,775.00			
Heavy Santa Fe	40	67,543.00	2,701,720.00			
Light Mallet	15	78,339.00	1,175,085.00			
Heavy Mallet	5	92,195.00	460,975.00			
				$43,820,411.25	$30,488,037.22	$13,332,374.03
American Locomotive Co. (1919 contract):						
Light Mikado	150	$60,613.27	$9,091,990.50			
Heavy Mikado	50	63,686.90	3,184,345.00			
Light Santa Fe	20	68,918.16	1,378,363.20			
Heavy Santa Fe	5	73,395.81	366,979.05			
Light switchers	50	38,416.33	1,920,816.50			
Heavy Switchers	150	46,199.03	6,929,854.50			
Heavy Mallet	75	98,155.60	7,361,670.00			
				30,234,018.75	.....	30,234,018.75
Baldwin Locomotive Works:						
Light switchers	20	$36,029.00	$720,580.00			
Heavy switchers	75	43,966.00	3,297,450.00			
Light Pacific	33	50,867.00	1,678,611.00			
Light Mikado	183	53,619.00	9,812,277.00			
Heavy Pacific	10	53,924.00	539,240.00			
Light mountain	15	56,995.00	854,925.00			
Heavy Mikado	87	58,761.00	5,112,207.00			
Heavy Mountain	2	61,929.00	123,858.00			
Light Santa Fe	75	62,277.00	4,670,775.00			
Heavy Santa Fe	10	67,543.00	675,430.00			
Light Mallet	15	78,339.00	1,175,085.00			
Heavy Mallet	15	92,195.00	1,382,925.00			
Consolidations	30	53,619.00	1,608,570.00			
				31,651,933.60	8,000,000.00	22,651,933.00
Lima Locomotive Works:						
Light Mikado	60	$53,619.00	$3,217,140.00			
Light Mikado	100	60,486.00	6,048,600.00			
				9,265,740.00	2,112,147.16	7,152,592.84
Total	2,055	.....	.....	$114,972,103.00	$40,601,184.38	$74,370,918.62
Less units completed and delivered	640	.....	.....	33,769,997.76	33,769,997.76	
Balance uncompleted	1,415	.....	.....	81,202,105.24	6,831,186.62	74,370,918.62

CONTRACTUAL OBLIGATIONS, DEC. 31, 1918—CONTRACTS FOR 100,000 FREIGHT CARS

Name	Number	Type	Price	Amount	Total cost	Less payment on account	Balance due
American Car & Foundry Co	9,000	S. S. box	$3,050.05	$27,450,450			
American Car & Foundry Co	11,000	D. S. box	2,918.88	32,107,680			
American Car & Foundry Co	5,000	C. G.	2,697.20	13,486,000			
American Car & Foundry Co	6,000	Hopper	2,816.67	16,900,020			
					$89,944,150.00	$26,069,876.83	$63,874,273.17
The Bettendorf Co	3,000	S. S. box	3,050.05	.....	9,150,150.00	1,622,220.42	7,527,929.58
Cambria Steel Co	3,000	Hopper	2,816.67	.....	8,450,010.00	285,634.68	8,164,375.32
Haskell & Barker	6,000	S. S. box	3,050.05	18,300,300			
Haskell & Barker	2,000	C. G.	2,697.20	5,394,400			
					23,694,700.00	6,848,149.38	16,846,550.62
Keith Car & Manufacturing Co	1,500	D. S. box	2,918.88	.....	4,378,320.00	1,022,653.46	3,355,666.54
Laconia Car Works	1,000	D. S. box	2,918.88	.....	2,918,880.00	853,522.96	2,083,357.04
Lenoir Car Works	2,000	D. S. box	2,918.88	.....	5,837,760.00	1,303,771.81	4,533,988.19
Liberty Car & Equipment Co	1,000	D. S. box	2,918.88	.....	2,918,880.00	447,763.72	2,471,116.28
Magor Car Corporation	1,000	C. G.	2,697.20	.....	2,697,200.00	587,681.53	2,109,518.47
Mount Vernon Manufacturing Co	4,000	D. S. box	2,918.88	.....	11,675,320.00	1,172,396.20	10,503,123.80
Pacific Car & Foundry Co	2,000	D. S. box	2,918.88	.....	5,837,760.00	1,217,693.32	4,620,066.68
Pressed Steel Car Co	6,500	C. G.	2,697.20	17,531,800			
Pressed Steel Car Co	5,000	Hopper	2,816.67	14,083,350			
Pressed Steel Car Co	2,500	70-ton	3,173.89	7,934,725			
					39,549,875.00	13,540,747.86	26,009,127.14
Pullman Co.	6,000	S. S. box	3,050.05	18,300,300			
Pullman Co.	2,000	Hopper	2,816.67	5,633,340			
					23,933,640.00	5,539,212.94	18,394,427.06
Ralston Car Co	4,000	Hopper	2,816.67	.....	11,266,680.00	3,848,869.47	7,418,810.53
St. Louis Car Co	1,000	S. S. box	3,050.05	.....	3,050,050.00	93,744.21	2,956,305.79
Standard Steel Car Co	2,000	D. S. box	2,918.88	5,837,760			
Standard Steel Car Co	5,000	Hopper	2,816.67	14,083,350			
Standard Steel Car Co	5,500	C. G.	2,697.20	14,834,600			
Standard Steel Car Co	2,500	70-ton	3,173.89	7,934,725			
					42,690,435.00	12,277,168.85	30,413,266.15
McGuire-Cummings Manufacturing Co	500	D. S. box	2,918.88	.....	1,459,440.00	456,399.99	1,003,040.01
Total	100,000	.....	.....	.....	$289,453,450.00	$77,186,507.63	$212,266,942.37
Less equipment complete and delivered	9,524	.....	.....	.....	26,736,451.55	26,736,451.55	.....
Balance uncompleted	.....	.....	.....	.....	$262,716,998.45	$50,450,056.08	$212,266,942.37

agreed upon at a conference held last week between T. C. Powell, director of the Division of Capital Expenditures, and Howard Elliott, chairman of the railway executives committee, which had previously conferred with Director General Hines.

Mr. Powell, in his D. C. E. circular No. 20, addressed to regional directors, dated March 13, says in part:

"Will you please instruct each federal manager to afford the proper corporate officer upon application full opportunity to review projects chargeable to capital account, whether in progress or contemplated, including not only the items in the 1919 budget and on D. C. E. Forms approved since January 1, 1919, but also all uncompleted items in the carry-over from 1918.

"If the corporate officer withdraws or withholds approval of any project for financial reasons or otherwise, please proceed as follows:

1. Work not started shall not be commenced without further approval by this division.
2. As to projects already started and actually under way, please see that no further work is done, except:
   (a) When necessary to insure safety.
   (b) Where the project is so far completed that to stop work would be more expensive than to continue it
   (c) Where a job is covered by bona fide contract and stopping the work would seriously demoralize conditions, especially as to working forces.

"In all cases where the federal manager and regional director believe the work should be done, whether as to new work or as to continuing work now in progress, even though the railroad company withholds or withdraws its approval, a full report should be promptly made to the Division of Capital Expenditures (with a copy thereof to the president of the company) stating the objections or disagreements that cannot be overcome, with the definite recommendation of the federal manager and regional director; and, pending further approval by this division, no such work should be started, and, except as provided in Section 2 above, no such work in progress should be carried on."

In addition to the temporary requirements, there are others as shown by the following table which is an unofficial estimate of immediate and future needs:

1.	Rentals to railroad for 1918 unpaid	$380,000,000
2.	To pay for expenditures on inland waterways	13,000,000
3.	To finance Boston & Maine reorganization	20,000,000
4.	Equipment ordered in 1918 for delivery in 1919	286,000,000
5.	Other additions and betterments for 1918	491,000,000
		$1,190,000,000
6.	Less portion of 1919 rental to apply on No. 5	150,000,000
		$1,040,000,000
7.	To finance 1919 maturities	220,000,000
8.	Estimated deficit for 1919	240,000,000
		$1,500,000,000
	Less No. 7, which can be financed by renewals, etc	220,000,000
		$1,280,000,000

Director General Hines has filed with the Senate Committee on Interstate Commerce to be printed in connection with the report of his testimony before the committee in February the following approximate statement of cash receipts and disbursements for the year 1918, which shows that the amounts actually paid to the railroad companies on account of their compensation during the year was $253,000,000, of which $138,000,000 was taken from the revolving fund and $115,000,000 from income from operation.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE YEAR 1918

Receipts—	Revolving fund	Operation	Total
Original appropriation	$500,000,000	.....	$500,000,000
American Railway Express Co.	.....	$42,157,416	42,157,416
Wells, Fargo Co. Express	.....	4,759,000	4,759,000
Net operating income (note)	.....	785,397,956	785,397,956
Total	$500,000,000	$832,314,372	$1,332,314,372
Disbursements—			
Loans to railroad companies:			
Secured	$110,317,500	$34,185,460	$144,502,960
Unsecured	15,500,250	34,932,863	50,433,113
Advances on compensation	138,331,660	114,946,140	253,277,800
Payment of corporate liabilities in excess of corporate assets received or collected	.....	68,743,883	68,743,883
Additions and betterments expenditures	.....	455,817,710	455,817,710
Purchase of standardized equipment	114,514,400	.....	114,514,400
Advances to inland waterways	.....	4,361,486	4,361,486
Advanced to Federal managers	74,791,000	(74,791,000)	.....
Miscellaneous (note)	.....	(6,436,980)	(6,436,980)
Total	$453,454,810	$631,759,562	$1,085,214,372
Balance	$46,545,190	$200,554,810	$247,100,000

Note.—This statement presupposes that all the income was actually collected in cash; this is not actually the case, partly because substantial amounts of freight and passenger fares were not actually paid in cash, and in part materials and supplies have necessitated the employment of a part of the cash. The inclusion of the item of ($6,436,980) (in parentheses) is a rough way of reflecting these and other similar factors.

STATEMENT OF ACCOUNT WITH RAILROAD COMPANIES WHOSE PROPERTIES WERE IN FEDERAL CONTROL AS OF DECEMBER 31, 1918

Credit to Companies		
Compensation—standard return		$928,314,372
Less—		
Advances	$253,277,800	
Loans, excluding New Haven loan	143,461,073	
		396,738,873
Balance due on compensation		$531,575,499
Deductions		
Other items in account with the corporations which may be retained in payment of balance of compensation:		
Surplus income which can be applied to additions and betterments		$214,211,190
Balance due companies in open account which is estimated can be retained from compensation on settlement thereof		55,929,620
		$270,140,810
Less—		
Balance payable to companies on open account	$20,372,215	
Depreciation accruals payable to companies	100,000,000	
		$120,372,215
Net amount to be retained		$149,768,595
Balance payable to companies in settlement of compensation for the year 1918, and on open account, and for additions and betterments to the companies' property to the extent that compensation suffices therefor		$381,806,904

Note.—The figures with reference to open account are based on report as of September 30, 1918, the latest available; it is believed that those figures will not be materially changed December 31, 1918. All other figures shown are of December 31, 1918. The date as to amounts which can be retained from companies' income to apply on additions and betterments are, of necessity, estimated.

From the Philadelphia Record

Changing Engines

119 Roads Earned Less Than Standard Return

Comparison of Net Operating Income for Last Year With Pre-War Results Shows Striking Changes

A TOTAL OF 119 RAILROADS out of a list of 184 Class I roads under federal control earned less than the amount of their standard return during the calendar year 1918, while 65 roads earned net operating income greater than their standard return and so contributed some $80,000,000 toward making up the deficiency in meeting the standard return of the other roads, although the net result was a deficiency for all the Class I roads of $202,135,602 as compared with the standard return for those roads of $890,335,685.

The so-called "standard return" is approximately the average net operating income for the three years ending June 30, 1917, and, as certified by the Interstate Commerce Commission, is the basis for the rentals to be paid by the government for the use of the railway property. Thirty-seven of the roads had actual operating deficits for 1918, while only six of the 184 had average deficits during the three-year period. Most of the 37 are included in the 119, but two are not because their deficits were less than their average deficits for the three-year period.

In the eastern district 22 roads earned more and 52 less than their standard return; in the southern district 18 earned more and 17 earned less; in the western district 25 earned more and 50 less, while of the roads having deficits 15 were in the east, four in the south and 18 in the west.

The accompanying table, showing a comparison of the net operating income for 1918 with the standard return, has been compiled by the Bureau of Railway Economics. An examination of the figures shows some interesting facts regarding the effect on the net operating income of the changes in the character of traffic in 1918 as well as of the policy of the Railroad Administration in treating the roads as a single system and in diverting traffic to and from various lines either for the purpose of securing more direct routes or in order to confine certain lines largely to certain classes of traffic. In some instances the net operating income for 1918 greatly exceeds the standard return—frequently it is more than double; in other roads that had a large net operating income during the three-year period earned only a small percentage of the amount in 1918. The Erie is probably the most conspicuous example of the effect of a change in the character of its traffic, because whereas its standard return was $15,503,939, it had an operating deficit in 1918 of $1,079,618 or a reduction of $16,583,557. The Chicago, Milwaukee & St. Paul earned only $3,643,192, or $23,511,359 less than its standard return of $27,154,551. The Baltimore & Ohio, which had a standard return of $25,611,892, earned net operating income in 1918 of only $7,187,683, or a reduction of $18,424,209, and the Pennsylvania Railroad earned only $18,317,171, as compared with a standard return of $51,361,262, while the Pennsylvania Company earned $4,284,827 as compared with a standard return of $14,992,785. On the other hand, the Southern Railway earned for the government $29,291,870 or $10,695,890 more than its standard return, while the Union Pacific earned $35,616,554 as compared with a standard return of $23,700,009.

The discrepancy between the net operating income for 1918 and the three-year average does not necessarily mean a diversion of traffic because increases in the case of roads serving the ports are frequently attributable to the increase in exports, and an unusually large increase in expenses, which might have been caused by an unusual amount of maintenance work, would affect the comparison. In one case the increase in wages alone was twice the amount of the standard return. Therefore an analysis of the earnings and expenses in 1918 as compared with those in the test

COMPARISON OF 1918 EARNINGS WITH STANDARD RETURN—EASTERN DISTRICT

Road	Standard return	Net operating income 1918	Amount by which net operating income was greater or less than standard return
Ann Arbor	$526,883	$175,134	—$351,749
Atlantic City	222,066	1,018,479	796,413
Baltimore & Ohio Chicago Terminal	1,254,546	d 158,175	—1,412,721
Baltimore & Ohio	25,611,892	7,187,683	—18,424,209
Baltimore, Chesapeake & Atlantic	86,647	d 21,323	—107,970
Bangor & Aroostook	1,555,775	592,229	—963,546
Belt Railway of Chicago	869,442	1,581,682	712,240
Bessemer & Lake Erie	4,674,714	4,913,766	239,052
Boston & Maine	9,478,075	1,733,008	—7,745,067
Buffalo & Susquehanna R. R. Corp.	592,628	104,570	—488,058
Buffalo, Rochester & Pittsburgh	3,276,410	1,027,518	—2,248,892
Central New England	1,468,124	53,036	—1,415,088
Central R. R. of New Jersey	9,352,301	6,268,096	—3,084,205
Central Vermont	779,098	d 647,358	—1,426,456
Chicago & Eastern Illinois	2,946,001	1,539,112	—1,406,889
Chicago and Erie	225,129	d 1,189,262	—1,414,391
Chicago, Indianapolis & Louisville	1,620,259	746,739	—873,520
Chicago, Terre Haute & Southeastern	922,785	766,068	—156,717
Chicago, Indianapolis & Western	422,213	d 165,412	—587,625
Cincinnati Northern	317,628	255,971	—61,657
Cleveland, Cincinnati, Chicago & St. Louis	9,938,597	14,688,938	4,750,341
Cumberland Valley	1,228,967	1,846,859	617,892
Delaware & Hudson	7,409,600	2,446,556	—4,963,044
Delaware, Lackawanna & Western	15,749,477	16,011,656	262,179
Detroit & Mackinac	310,664	31,289	—279,375
Detroit & Toledo Shore Line	456,512	460,195	3,683
Detroit, Toledo & Ironton	210,169	d 722,551	—932,720
East St. Louis Connecting Ry.	127,220	d 385,023	—512,243
Elgin, Joliet & Eastern	2,862,177	4,717,973	1,855,796
Erie	15,503,939	d 1,079,618	—16,583,557
Fonda, Johnstown & Gloverstown	359,583	321,183	—38,400
Grand Rapids & Indiana	929,385	247,581	—681,804
Grand Trunk Lines in New England	d 4,271	d 1,088,669	—1,084,398
Grand Trunk Western	1,354,841	188,792	—1,166,049
Hocking Valley	2,637,167	2,718,733	81,566
Indiana Harbor Belt	296,054	d 1,603,434	—1,899,488
Kanawha & Michigan	1,295,141	1,651,579	356,438
Lake Erie & Western	1,548,542	379,653	—1,168,889
Lehigh & Hudson River	519,371	357,550	—161,821
Lehigh & New England	1,135,761	1,178,658	42,897
Lehigh Valley	11,321,233	6,683,313	—4,637,920
Long Island	3,221,949	3,891,092	669,143
Maine Central	2,955,697	d 595,895	—3,551,592
Maryland, Delaware & Virginia	49,543	d 76,025	—127,568
Michigan Central	8,052,127	13,606,480	5,554,353
Monongahela	583,086	648,042	64,956
Monongahela Connecting	33,620	139,827	106,207
Newburgh & South Shore	75,831	215,626	139,795
New York Central	55,802,631	48,291,878	—7,510,753
New York, Chicago & St. Louis	2,218,857	3,834,512	1,615,655
New York, New Haven & Hartford	16,867,128	7,534,334	—9,332,794
New York, Ontario & Western	2,103,589	548,583	—1,555,006
New York, Philadelphia & Norfolk	996,051	972,603	—23,448
New York, Susquehanna & Western	800,387	419,034	—381,553
Pennsylvania Company	14,992,785	4,284,827	—10,707,958
Pennsylvania Railroad	51,361,262	18,317,171	—33,044,091
Pere Marquette	3,748,196	3,814,052	65,856
Philadelphia & Reading	15,868,331	8,847,389	—7,020,942
Pittsburgh & Lake Erie	8,980,219	9,839,555	859,336
Pittsburgh & Shawmut	482,817	130,256	—352,561
Pittsburgh & West Virginia	237,010	d 328,012	—565,022
Pittsburgh, Cincin., Chicago & St. Louis	11,334,094	2,973,777	—8,360,317
Port Reading	235,698	489,964	254,266
Rutland	1,023,883	35,559	—988,324
South Buffalo	141,160	125,016	—16,144
Staten Island Rapid Transit	356,824	31,042	—325,782
Toledo & Ohio Central	1,086,651	738,970	—347,681
Toledo, St. Louis & Western	994,294	1,241,182	246,888
Ulster & Delaware	128,009	d 57,850	—185,859
Union R. R. Co. of Pennsylvania	1,370,290	1,455,665	85,375
Wabash	5,857,772	3,721,029	—2,136,743
Western Maryland	3,079,593	d 492,469	—3,572,062
West Jersey & Seashore	952,682	d 168,966	—1,121,648
Wheeling & Lake Erie	1,586,037	1,048,583	—537,454

period is required to ascertain how much of the difference from the pre-war results was affected by changes in traffic.

The Southern district was the only one in which the number of roads earning the amount of their standard return or more exceeded the number that failed to do so. The Atlantic Coast Line earned $1,445,213 more than its standard return of $10,180,915. The Chesapeake & Ohio earned $3,815,422 more than its standard return of $13,226,983, the Louisville & Nashville earned $2,057,137 more than its standard return of $17,310,495. The Richmond, Fredericksburg & Potomac and the Washington Southern, which handled an unusually large percentage of troop traffic, both earned greatly in excess of their pre-war average.

In the east more than two-thirds of the roads failed to earn the standard return, and in the west just two-thirds had a similar result. Some of the more conspicuous examples of the roads that exceeded the amount of the guarantee in the east were the Cleveland, Cincinnati, Chicago & St. Louis, the Elgin, Joliet & Eastern, the Michigan Central, and the New York, Chicago & St. Louis, while the Boston & Maine earned only $1,733,008 or $7,745,067 less than its standard return of $9,478,075; the Delaware & Hudson earned only $2,446,556 or $4,963,044 less than its standard return of $7,409,600 and the New York Central earned $7,510,753 less than its standard return of $55,802,631. In the western district the Atchison, Topeka & Sante Fe earned $3,114,578 more than its guarantee of $38,443,725, the Duluth & Iron Range and the Duluth, Missabe & Northern earned amounts greatly in excess of the standard return; while the Chicago & North Western earned only $12,441,437 as compared with $23,201,016, the Chicago, Burlington & Quincy earned $25,016,100 as compared with $33,360,683, the Chicago, Great Western earned only $21,457 as compared with $2,953,450 and the Great Northern earned $11,978,791 as compared with $28,666,681.

The total standard return for the Class I roads amounts to $890,335,685. Forty-three of the roads have executed contracts with the Railroad Administration providing for a total compensation of approximately $485,000,000. Some of these contracts include several other Class I roads. A statement recently made by Director General Hines shows that $253,277,800 was actually paid in 1918 on account of compensation, of which $138,000,000 was taken from the revolving fund and $115,000,000 from operating income. A total of $214,000,000 was deducted from the rental to apply on capital expenditures and after various other adjustments between the companies and the Railroad Administration it owed the companies on January 1, $381,806,904.

COMPARISON OF 1918 EARNINGS WITH STANDARD RETURN—WESTERN DISTRICT

Road	Standard return	Net operating income 1918	Amount by which net operating income was greater or less than standard return
Arizona Eastern	$1,242,475	$1,472,292	$229,817
Atchison, Topeka & Santa Fe	38,443,725	41,558,303	3,114,578
Beaumont, Sour Lake & Western	d 33,489	244,762	278,251
Chicago & Alton	3,178,315	1,776,749	—1,401,566
Chicago & Northwestern	23,201,016	12,441,437	—10,759,579
Chicago, Burlington & Quincy	33,360,683	25,016,100	—8,344,583
Chicago, Great Western	2,953,450	21,457	—2,931,993
Chicago Junction	916,804	133,513	—783,291
Chicago, Milwaukee & St. Paul	27,154,551	3,643,192	—23,511,359
Chicago, Peoria & St. Louis	127,540	d 529,254	—656,794
Chicago, Rock Island & Gulf	971,512	968,722	—2,790
Chicago, Rock Island & Pacific	14,912,379	8,211,683	—6,700,696
Chicago, St. Paul, Minneapolis & Omaha	4,934,790	2,624,720	—2,310,070
Colorado Southern	2,481,212	2,941,746	460,534
Denver & Rio Grande	8,319,377	5,434,321	—2,885,056
Denver & Salt Lake	353,290	d 961,458	—1,314,748
Duluth & Iron Range	2,355,242	3,803,620	1,448,378
Duluth, Missabe & Northern	5,122,051	12,465,248	7,343,197
Duluth, South Shore & Atlantic	594,637	263,948	—330,689
El Paso & Southwestern	4,145,102	4,936,392	791,290
Fort Smith & Western	82,194	186,732	104,538
Fort Worth & Denver City	1,891,386	1,745,880	—145,506
Fort Worth & Rio Grande	1,301	d 61,592	—62,893
Galveston, Harrisburg & San Antonio	3,230,645	5,347,757	2,117,112
Galveston Wharf	526,070	227,315	—298,755
Great Northern	28,666,681	11,978,791	—16,687,890
Gulf, Colorado & Santa Fe	2,828,218	2,824,146	—4,072
Houston & Texas Central	1,717,506	2,286,307	568,801
Houston, East & West Texas	375,566	404,017	28,451
International & Great Northern	1,394,946	1,372,281	—22,665
Kansas City, Mexico & Orient	9,073	d 334,318	—22,665
Kansas City, Mexico & Orient of Texas		d 361,531	—704,922
Kansas City Southern	3,216,698	2,782,977	—423,721
Kansas City Terminal	1,998,642	2,184,424	185,782
Los Angeles & Salt Lake	3,420,417	2,746,635	—673,782
Louisiana & Arkansas	407,987	77,637	—330,350
Louisiana Ry. & Navigation Co.	357,353	198,746	—158,607
Louisiana Western	895,178	1,823,579	928,401
Midland Valley	444,346	750,888	306,542
Mineral Range	147,432	9,740	—137,692
Minneapolis & St. Louis	2,639,857	235,782	—2,404,075
Minneapolis, St. Paul & Sault Ste. Marie	10,573,291	3,858,722	—6,714,569
Minnesota & International	202,455	d 57,885	—260,340
Missouri & North Arkansas	13,146	d 117,046	—130,192
Missouri, Kansas & Texas	5,853,831	5,213,798	—640,033
Missouri, Kansas & Texas of Texas	621,773	d 800,095	—1,421,868
Missouri, Oklahoma & Gulf	d 83,603	d 470,167	—386,564
Missouri Pacific	14,206,814	11,764,562	—2,442,252
Morgan's Louisiana & Texas Pacific R. R. & Nav.	1,188,526	2,357,330	1,168,804
New Orleans, Texas & Mexico	218.773	445,112	226,339
Northern Pacific	30,057,760	28,209,373	—1,848,387
Northwestern Pacific	1,235,101	1,498,908	263,807
Oregon Short Line	10,196,750	10,703,193	506,443
Oregon-Washington R. R. & Nav Co.	4,519,352	4,488,494	—30,858
Pan Handle & Santa Fe	1,330,664	d 8,171	—1,338,835
Peoria & Pekin Union	306,514	d 105,315	—411,829
St. Joseph & Grand Island	373,811	d 106,527	—480,338
St. Louisville, Brownsville & Mexico	983,890	1,245,345	261,455
St. Louis, Merchants Bridge Terminal	412,428	d 106,556	—518,984
St. Louis, San Francisco	13,690,213	11,199,410	—2,490,803
St. Louis, San Francisco & Texas	d 327,035	d 117,556	209,479
St. Louis Southwestern	3,355,749	3,672,695	316,946
St. Louis, Southwestern Ry. of Texas	555,165	d 343,124	—898,289
San Antonio & Aransas Pass	373,052	d 129,476	—502,528
Southern Pacific		33,970,453	
Southern Pacific Steamship Lines	38,021,938	4,034,653	—16,832
Spokane, Portland & Seattle	1,871,083	2,679,866	808,783
Terminal R. R. Ass'n of St. Louis	2,574,511	1,856,682	—717,829
Texarkana & Fort Smith	318,730	310,033	—8,697
Texas & New Orleans	715,136	964,627	249,491
Texas & Pacific	4,107,432	3,707,266	—400,166
Toledo, Peoria & Western	159,740	d 10,955	—170,695
Trinity & Brazos Valley	d 238,905	d 387.752	—148,847
Union Pacific	23,700,009	35,616,554	11,916,545
Utah Ry.*b*	.....	589,157	.....
Vicksburg, Shreveport & Pacific	337,948	322,495	—15,453
Western Pacific	1,900,350	2,575,300	674,950
Wichita Falls & Northwestern	145,245	d 489,516	—634,761

b Road operated as a lessor company prior to December 1, 1917.
d Indicates deficit.

COMPARISON OF 1918 EARNINGS WITH STANDARD RETURN—SOUTHERN DISTRICT

Road	Standard return	Net operating income 1918	Amount by which net operating income was greater or less than standard return
Alabama & Vicksburg	$322,854	$323,995	$1,141
Alabama Great Southern	1,703,180	2,038,471	335,291
Atlanta & West Point	252,995	647,348	394,353
Atlanta, Birmingham & Atlantic	358,058	d 584,761	—942,819
Atlantic Coast Line	10,180,915	11,626,128	1,445,213
Birmingham Southern	138,815	309,612	170,797
Carolina, Clinchfield & Ohio	1,585.159	1,098,306	—486,853
Central of Georgia	3,450,903	3,905,339	454,436
Charleston & Western Carolina	466,921	548,532	81,611
Chesapeake & Ohio	13,226,983	17,042,405	3,815,422
Cincinnati, New Orleans & Texas Pacific	3,541,040	3,047,946	—493,094
Coal & Coke *a*	282,323	d 101,522	—383,845
Florida East Coast	2,842,842	1,601,838	—1,241,004
Georgia R. R. Lessee Organization	858,622	2,246,569	1,387,947
Georgia Southern & Florida	511,457	347,861	—163,596
Gulf & Ship Island	597,456	363,665	—233,791
Gulf, Mobile & Northern	558,338	191,160	—367,178
Illinois Central	16,282,374	12,907,466	—3,374,908
Louisville & Nashville	17,310,495	19,367,632	2,057,137
Louisville, Henderson & St. Louis	343,916	640,222	296,306
Mobile & Ohio	2.578,203	247,368	—2,330,835
Nashville, Chattanooga & St. Louis	3,182,089	4,119,127	937,038
New Orleans & Northeastern	1,007,931	975,440	—32,491
New Orleans Great Northern	575,952	409,221	—166,731
Norfolk & Western	20,534,163	18,256,481	—2,277,682
Norfolk Southern	1,166,991	289,942	—877,049
Richmond, Fredericksburg & Potomac	1,137,374	3,016,827	1,879,453
Seaboard Air Line	6,497,025	3,636,725	—2,860,300
Southern	18,595,980	29,291,870	10,695,890
Southern Ry. in Mississippi	d 75,843	d 40,794	35,049
Tennessee Central	162,734	d 4,745	—167,479
Virginian	3,247,603	1,848,259	—1,399,344
Washington Southern	468,433	1,721,555	1,253,122
Western Ry. of Alabama	288,238	614,106	325,868
Yazoo & Mississippi Valley	3,862,318	4,499,956	637,638

a Returns for 1918 cover nine months to September 30; road merged with Baltimore & Ohio on October 1.
d Indicates deficit.

Unification of Car Inspection and Maintenance*

Backing of Operating Officers Needed by Car Department to Perform Its Functions Effectively

By J. J. Tatum
General Supervisor of Car Repairs, United States Railroad Administration

IT HAS GENERALLY been found by railroad managements that the inspection and maintenance of car equipment is not uniform and they have frequently urged unification of inspection and repairs, deeming it to be an important factor of safety, good performance and economical operation.

Unification of inspection and repairs to equipment was found by the United States Railroad Administration to be such an important requirement of good railroad performance that it soon began to lay plans and make instructions effective that would unify inspection and repairs, as well as to standardize equipment.

For this reason Circular No. 7 was issued, June 8, 1918, by C. R. Gray, former director of the division of operation, to insure that inspection and repairs would be properly made to car equipment. Mechanical Department Circular No. 7 was issued October 17, covering repairs to refrigerator cars for the purpose of standardizing the repairs to refrigerator cars to such extent that they would be suitable for the service they are intended to perform. Mechanical Department Circular No. 8 was issued November 1, 1918, for the purpose of standardizing materials for freight car repairs in order that repairs could be made promptly and uniformly.

Knowing that certain things must be done and issuing instructions to do them does not always mean they will be done, or that the instructions issued will be complied with. Something more is required. The men in charge should be capable not only of issuing instructions but capable of knowing when instructions are being complied with. They should also be capable of issuing workable instructions and selecting men who are capable of complying with their instructions.

If this statement is true then we should have thorough, capable and efficient men at the head of car departments, who know when a car is properly inspected and how to inspect it. They should know when a car is properly repaired and how to repair it. If they are capable of doing this, they should then be capable of selecting the right men to see that this work is properly performed. They should know that the foremen they have placed in charge of their repair shops are not only capable of repairing cars and knowing that they are properly repaired but that they are also capable of seeing that the men doing the work do it properly.

When selecting a man as foreman car inspector or leading inspector, it should be known that the man selected is not only capable of inspecting a car and knowing when it is properly inspected but that he is capable of selecting men as inspectors who are able to inspect cars properly.

After these requirements are met, we may look with confidence for unified inspection and maintenance of equipment, but not until then.

Even after this is done there will still continue to be improper inspection and maintenance of equipment and a variance from the unification requirements if those in charge of these men do not respect their action. I mean by this statement that inspectors should be given all trains to inspect and they should be permitted to hold them a sufficient length of time to give each car the needed inspection and repairs, or to shop the defective car out for repairs. After a car inspector has shopped a car for defects which make it unsafe to be continued in service, no one should be permitted to cause such car to be placed back in service until the repairs for which the car was shopped have been made properly, or improper repairs corrected. One giving or assuming such authority, will by his act, become an enemy to safety and a promoter of disaster that may result in loss of life or limb and destruction of property.

It should be considered just as serious and dangerous for one to remove a shop card from a defective car and permit it to go into service without necessary repairs being made, or permit a car to go into service with a shop card on it without the repairs being made, as it would be for one to change a red signal to white before an approaching train, without knowing whether or not the block into which the train is to move is safe and clear. In my opinion, one act is just as serious and just as liable to cause disaster as the other.

Therefore, Mr. Railroad Manager, it is with you to see to it that your car inspectors are given your trains to inspect, with the time to make needed inspection and repairs. If this is not done you should be responsible for the failure of such cars and not the head of the car department or his inspector. It also lies with you to see that the car inspector's action, when shopping a car out for repairs, is given your full support, to the extent that, should anyone remove a shop card from a defective car and permit it to go into service before necessary repairs are made, or place a car in service with a shop card on it, such person should be relieved from the service for the good and safety of all concerned. If this is not done, then the motto we have established—"Safety First"—is only a mockery and you are deceiving yourself as well as the public, in your efforts to promote such a doctrine.

The protection of millions of passengers using the railroads of our country, as well as railroad employees, and the protection of billions of dollars' worth of railroad property and billions of dollars of freight hauled in cars operating over our railroads depends upon the thorough and careful inspection made to our cars. There also depends upon their careful inspection and the repairs to equipment the protection of foodstuffs needed to feed hundreds of millions of people. With this great responsibility upon the inspectors, their value cannot be discounted.

To bring about these desired conditions it is necessary that we first select for the heads of our car departments men who have been thoroughly trained and well experienced. They should see to it that inspectors selected are capable of making safe and proper inspection of car equipment. This can only be established by requiring inspectors to pass an examination that will insure that after once passing the examination they are capable of performing the work assigned to them.

They should also see that inspectors are given all trains to inspect and permitted to hold them until inspection is made. Cars once inspected and passed as being fit for service should be in such condition that, when inspected again at next inspection point, they will not be shopped out for defects that existed at the time of the previous inspection; neither should they fail while in movement due to such defects. In other words, should an inspector pass a car as being safe and fit for loading at St. Louis that car should be in condition to continue through to New York or any destination without being shopped out or breaking down in movement, due to

*Abstract of a paper read before the Central Railway Club at Buffalo, N. Y., March 14, 1919.

defects existing when the car was inspected at St. Louis. When a car repaired on shop tracks at Chicago is moved to New York for loading it should not be necessary to shop it for defects that existed when it was placed on the shop tracks, or for improper repairs made at Chicago, on or before its arrival at New York. No car should be placed for loading until first inspected and given needed repairs.

Unless we are able to obtain these desirable conditions our inspection or our repairs are not uniform, or our supervisors are not capable and efficient, or someone is removing shop cards or causing cars to leave inspection points or repair yards before they are in proper condition for service.

Unless such practices are corrected (if they exist) we cannot expect to establish the unified requirements which would result in safe and economical operation. Unified inspection and repairs will mean to our railroads less loss of life and limb of passengers and trainmen, greater car mileage, fewer accidents, less destruction of equipment and property, less repeated shopping of cars, greater car supply, less need for purchase of new equipment, decrease in cost of operation, less maintenance cost, prompt handling of business, greater satisfaction to shippers, better earnings for railroads and a more satisfactory dividend for the stockholders.

Discussion

In presenting his paper Mr. Tatum referred to the fact that of the more than two and a half million freight cars in the country about 125,000 cars are being held for repairs and more than 100,000 cars are being repaired per day. There are on 80 railroads, or about 57.6 per cent of the railroads reporting to the Railroad Administration, less than four per cent bad order cars. On February 15 there were 141,000 men employed in car repairs on 139 Class I railroads, which were holding an average of slightly over five per cent of their cars in bad order.

F. W. Brazier, superintendent rolling stock, New York Central, questioned the significance of the figures given by Mr. Tatum as to the number of cars actually in bad order condition, owing to the fact that instead of giving cars thorough repairs too many of them had only received sufficient repairs to get them temporarily back into service. He endorsed the requirements for unification outlined by Mr. Tatum, stating that the instructions are clear enough, but that little attention is paid to some of them; when business is rushing there is a great demand for equipment and only such repairs are made as will keep the cars running, instead of giving them the thorough repairs they need, when they are empty and on the repair track. M. C. B. Circular 4-A, now in effect, was quoted to show that it is not so much instructions that are needed as some way of securing their full observance. This circular alone, if carried out, would greatly improve the condition of equipment not now suitable to meet modern service conditions. In this connection Mr. Brazier stated that the New York Central on August 1, 1918, had 7,000 cars yet to be equipped with safety appliances. Since that time only eight cars have been reported as being equipped with the safety appliances on foreign lines, as compared with 370 foreign cars which have had the appliances brought up to standard on the New York Central Lines. The need of adequate force behind instructions, if they are to be carried out, was further emphasized by Mr. Brazier, who cited the case of the safety appliance standards now adopted and enforced by the Interstate Commerce Commission. The Master Car Builders' recommendations for the ladder location were complied with by about 85 per cent of the railroads, but the other 15 per cent of the roads persisted in applying their ladders in exactly the opposite location. The Interstate Commerce Commission did not formulate new standards, but it required the force behind the Safety Appliance Acts to bring about 100 per cent compliance with the standards formulated by the association.

The need of the highest type of supervision in the car department was emphasized, its importance being indicated by the fact that in 1917 the New York Central spent $8,000,000 in the maintenance of locomotives, whereas the car department's expenditures totaled $17,000,000. But labor conditions have been such during the past year that it has been difficult to keep men in the service long enough to develop good inspectors.

Commenting on Mr. Tatum's remarks as to the need of holding trains for thorough inspection, Mr. Brazier advocated that no car be placed for loading until it has passed a thorough inspection. Such inspection should apply particularly to the running gear, brake rigging and draft gear, which must be in first-class condition on all cars, while some other parts of the car need not necessarily be in perfect condition to receive certain classes of lading.

Mr. Brazier called attention to the air brake situation, which is one of the most serious conditions affecting the proper operation of freight cars. He suggested as a subject for investigation how many railroads have proper yard facilities for testing the brake equipment and making necessary repairs to it. Referring to this matter, Mr. Tatum mentioned an instance in which a railroad was endeavoring to economize in the purchase of material by reclaiming old cylinder gaskets, no new ones being purchased. An inspection was made of some of the brakes thus overhauled after the work had been completed and the brakes stenciled ready to return to service; the fact was disclosed that the brakes leaked off so fast that it was impossible for the inspector to read the gage quick enough to say whether they had applied or not. A question as to the proper life of air hose in its relation to brake conditions was raised by H. C. Woodbridge, regional supervisor of the Fuel Conservation Section of the Railroad Administration, who stated that it costs as much to stop a train as to renew an air hose. This was cited as an indication of the false economy of attempting to retain air hose in service beyond the period during which they may reasonably be expected to remain tight. It was suggested that if road foremen and enginemen would report excessive train line leakage these reports might serve as a means of keeping the car department advised as to tendencies in the condition of air brake equipment. L. D. Gillette, inspector of the Canadian Dominion Railway Commission, also referred to the question of porous hose as being a source of great danger to the safe movement of traffic,—the proper place to locate the porous hose being in the yard and not on the road. In reply, Mr. Tatum stated that he considered the safe life of an air hose to be about one year, and referred to the fact that the Master Car Builders' Association is now considering the formulation of rules covering the question of air brake maintenance.

R. S. Miller, master car builder of the New York, Chicago & St. Louis, raised the question as to what constitutes a serviceable car. Various interpretations of this expression are being adhered to in different localities, which causes difficulty under present conditions in the free movement of equipment. If a uniform interpretation were available it would materially assist in securing unified inspection. Mr. Miller also advocated the universal use of the Master Car Builders' rules for the examination of car inspectors rather than the individual sets of such rules instituted by various car department heads. In answer to the question as to what constitutes a serviceable car, Mr. Tatum stated that he considered a car serviceable when it was in condition to carry the class of freight for which it was built, but that this did not preclude the use of box cars not in serviceable condition for first-class merchandise to carry rough freight.

W. H. Sitterly, general car inspecter, Pennsylvania Railroad, emphasized the air brake situation, stating that the brakes contribute very largely to bad car conditions. The one difficulty is that time enough is not given to the car inspector to properly do his work, and it is also necessary that

adequate time be given to making the needed repairs disclosed by the inspection. Cars should not be delivered in interchange with a clean bill of health merely to get rid of them. Facilities should be available for repairing the cars. There should be only about one and a half times the day's work ahead of the car repair forces and to keep within this figure adequate facilities and enough men must be provided. Great assistance in securing proper compliance with rules relating to car repairs in interchange has been rendered by the Railroad Administration in holding the individual responsible for failure to make needed repairs or for making improper repairs, instead of the matter being, as it formerly was, a subject for adjustment between the railroad companies involved. Mr. Sitterly referred to an analysis of 787 box cars which had been made at Buffalo to ascertain their suitability to be coopered for grain. Of these cars only 55 per cent were found fit to carry grain. He stated that this situation could be improved by using cars which were not suitable to be coopered for grain for loading such commodities as fertilizer, hides, oil, etc., which leave the car in a condition unsuitable for grain service.

In referring to Mr. Brazier's discussion Mr. Tatum called attention to Circular No. 20, which specified that when a car is repaired it should be put in service to give two years' service, barring accidents. In this connection he emphasized the need for more facilities. Operating officers and managers often complain about the condition of the equipment, but they seldom offer to furnish shop facilities adequate to carry out the amount of work which must be done to keep the cars from returning frequently to the repair tracks. It is not conducive to an ideal condition of rolling stock when a shop becomes somewhat congested with bad order cars to relieve the congestion by taking off the bad order cars without performing the work required.

T. J. O'Donnell, chief joint inspector, Niagara Frontier Car Inspection Association, referring to Mr. Tatum's statement that it should not be necessary to shop a car for defects that existed prior to the time of the last shopping, said that the Buffalo gateway had at least 1,000 loaded cars every morning, loaded from 24 to 48 hours earlier, which it was necessary to condemn, as high as 150 pairs of wheels having to be changed in one day. It is the endeavor at Buffalo to get cars through the terminal in three hours, but to do this the equipment must be in first-class condition.

A. R. Ayers, superintendent motive power, New York, Chicago & St. Louis, advocated the adoption of a regular periodical program of general overhauling of cars similar to that followed in the maintenance of locomotives. He also considered it best to allow the owning roads to handle the heavy repairs and betterments to their own equipment, as they are in a position to live up to the requirements of Circular No. 8. Furthermore, they are in a position to lay out the program for betterments to a whole class of their own equipment and then carry it out on a quantity basis rather than one car at a time. Mr. Ayers emphasized the need of carrying out such betterments by referring to a study which had indicated that steel cars or cars with steel frames came on the repair track on account of the draft gear less than once a year, whereas wood underframe cars appear on the repair track for the same class of repairs about two and a half times a year. In other words, it is a physical impossibility to repair a wood underframe car so that it will run two years, on account of draft timbers.

A question was raised if the Railroad Administration had any program in view for returning cars to the owner for such work. The difficulty of carrying out this work was indicated by the situation on the Delaware, Lackawanna & Western, which had less than six per cent of its own cars on its line, where formerly the average was 60 to 65 per cent. In answer to this Mr. Tatum called attention to the fact that cars can now be sent home at the owner's discretion when the cost of making repairs exceeds $200 and that cars on connecting lines can be sent to the home road for repairs. It is the policy of the Administration, however, that repairs be made wherever the cars are located when such repairs can be made in kind.

P. J. O'Dea, chief car inspector of the Erie Railroad, inquired as to what conditions had actually been found throughout the country and what might be expected in the future in the carrying out of betterment programs for equipment not now fully able to meet modern service conditions. In replying, Mr. Tatum called attention to the fact that the war had taxed the equipment as well as the other railroad facilities far beyond what has been considered its normal capacity. At the present time preparations are being made to carry out reinforcement programs on thousands of cars. It is, however, unreasonable to expect immediate results, as little of this work can actually be carried out within less than a year. Under present conditions it takes from three to six months to get together the material, such as center sills, bolsters, truck side frames, steel ends, etc., for a single lot of 1,000 cars. At the present time some 20 roads are preparing to reinforce about 20,000 to 25,000 cars, which will eventually result in an improvement in conditions.

The Problem of the British Railways

SALIENT FACTS AS TO THE PLIGHT of the English roads are given by Frank H. Fayant, assistant to the chairman of the Association of Railway Executives, who recently returned from Europe where he made an investigation of the effect of the war on the railways of England and France.

"The English railway employees, including workers in coal mines and industries supplying materials to the roads, have, in effect, confiscated the property," said Mr. Fayant. "The whole English railway system today is potentially bankrupt. The burden of meeting the deficit in operation and paying the rental to the owners is being carried by the public treasury; that is, the increased labor cost is being met by the English people through taxation.

"When the English government took control of the railways for war purposes in 1914, guaranteeing as rental to the owners the pre-war net income, the annual receipts were $680,000,000 and the operating expenses were $430,000,000 —of which $250,000,000 was the payroll, $25,000,000 covered taxes, and $155,000,000 paid for coal and materials. This left a net income of $250,000,000 to pay interest and dividends on invested capital giving a return to the owners of less than 4 per cent.

"English railway wages before the war were very low—too low for decent living conditions. At that time the average annual wages earned per employee were less than $350, while in this country our average was then more than $800. The rapid rise in the cost of living and in wages paid munition workers created great unrest among the English railway men. The government attempted to deal with the problem by giving 'war bonuses' based on the rise in the cost of living. The workers gladly accepted the money but they objected to the way it was tagged. They wanted wages that would continue after the war and not bonuses. The government accordingly dropped the word.

"Instead of giving the larger increases to the less well paid men and smaller increases to the better paid as our Railroad Administration has been doing, the English government gave identical increases to all employees. Beginning in October, 1914, and running to November, 1918, there were eight successive wage increases varying from 3 shillings to 6 shillings a week, and totaling 33 shillings, or $7.90. These increases in the weekly wage added $275,000,000 to the payroll. Then at the end of the war, when Lloyd George appealed to the country for a vote of confidence, the

railway unions made a renewed demand for an eight-hour day. Lloyd George granted the demand, and this added $125,000,000 more to the payroll, making the total increase in wages $400,000,000 or 160 per cent.

"This brought the payroll up to $650,000,000, as compared with total railway revenue before the war of $680,000,000. There was also, as in this country, a very large increase in the cost of coal, steel and other materials, which added $140,000,000 more to the operating expenses. The greater part of this item, of course, is made up of increases in wages to coal miners and steel workers. The increase in the cost of materials added to the increase in wages brings the operating expenses of the English roads up to $970,000,000 a year; including the rental, or the interest on the investment, the total cost of producing transportation is now $1,220,000,000 a year as compared with $680,000,000 before the war—an increase of about 80 per cent. There has been no increase in freight rates in England to meet the great increase in the cost of operation. Passenger fares were raised 50 per cent early in the war, more for the purpose of reducing travel than for producing revenue. The increase in passenger rates, together with the increase in freight traffic, has probably added $100,000,000 to the revenues, bringing them up to $780,000,000.

"The gross receipts of the English roads therefore are $190,000,000 less than the operating expenses and $440,000,000 less than the total cost of producing transportation—the return on capital included. It is this $440,000,000, amounting to about one and one-quarter million dollars a day, that Sir Eric Geddes referred to in Parliament in his speech on Monday, when he showed that the war control had virtually bankrupted the roads. Included in this deficit met by the Treasury is, of course, the value to the government of carrying government traffic, which, before the end of the war, was estimated at $150,000,000 a year. This item is now much less.

"The English government must continue under the war control act to operate the roads for two years more, and pay the rental to the owners. If returned to the private companies on their present basis of rates and costs, they could earn neither dividends nor interest, and most of them could not even earn their operating expenses. A freight rate increase of 100 per cent would be necessary to enable the companies to survive, and the feeling in England is that with rates already high, no government would have the courage to grant such a large increase to the private companies. For this reason it is believed that nationalization of the English roads will be the only way out of the muddle, and the general public, through taxation, will then make up the revenues unprovided by shippers and passengers.

"Fortunately, the American railways are in no such plight as the English roads. While England, at the beginning of the war, had high freight rates and low wages, we were fortunate in having low freight rates and high wages. In this country we were not obliged to make such an enormous percentage in wages, although our labor cost has risen greatly and we could raise freight rates. . . . Since 1915 the annual average earnings of American railway workers have been advanced from $800 to $1,400; in England they have risen from $350 to $900."

Gondola Car of Reinforced Concrete Construction

Design Incorporating Steel Center Sills With Concrete Floor, Sides and Ends—New Aggregate Used

AN INNOVATION in railway equipment is a reinforced concrete car of the gondola type, invented and designed by Joseph B. Strauss, C. E., president of the Strauss Bascule Bridge Co., and recently built by the R. F. Conway Company, Chicago. The plans for the car were drawn up several years ago and patents were secured covering the important features of the design. The actual construction was started during the war when it was thought that, due to the shortage of steel, it might be possible to relieve the car shortage materially by developing concrete construction.

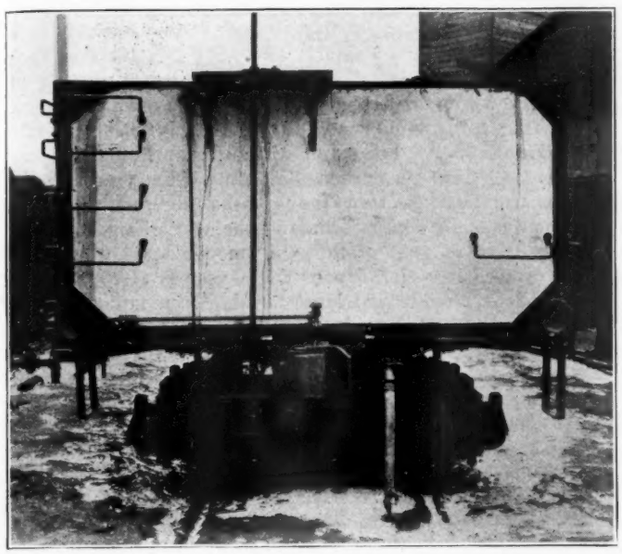
The fundamental feature of the design is a steel skeleton body mounted upon the standard center sills and bolsters of the U. S. R. A. 40-ft., 50-ton gondola car. Concrete walls and floors are contained within the skeleton steel frame and together with the reinforcement in the floor are connected to the underframe in such a manner that the buffing and pulling stresses are distributed throughout the car body. The car was designed for a capacity of 100,000 lb. plus the usual 10 per cent overload. The end load was assumed at 200,000 lb. with an allowance of 25 per cent for impact, equivalent to an end load of 250,000 lb. The unit stresses in the steel were limited to 16,000 lb. per sq. in., and in the concrete to 1,000 lb. per sq. in. The gondola type was chosen for this experimental concrete car because equipment of this type is subjected to the severest handling. Dumping devices were omitted merely to simplify the construction, but this feature can be incorporated in the car without any difficulty of design or construction.

The car has an over-all length of 41 ft. 6½ in., and over-all width of 10 ft. 2⅞ in., with sides 4 ft. 10½ in. high. The steel members of the underframe consist only of the center sill, which is of two 12-in. 35-lb. ship channels, with a ¼ in. by 20½ in. cover plate, and the body bolsters and diagonal corner braces, which conform to the U. S. R. A. standard design. There are six reinforced concrete cross

Interior of the Car Body

bearers in the car spaced approximately 4 ft. 6½ in. apart. The size of the section varies from 4 in. by 12 in. at the sides to 4 in. by 1 ft. 4⅛ in. at the center sill. The floor is 2⅛ in. thick, reinforced with longitudinal and transverse rods ¼ in. in diameter. Along the outer edge of the floor is a 3½ in. by 3½ in. angle and at the top of the sides there is a 4-in. channel.

This steel frame serves as the tension members of the truss and also furnishes a means of attachment for the reinforcing, the side reinforcing rods extending through holes drilled in the angles and channels. The sides are 1¾ in. thick and are strengthened at the bolsters and at the cross bearers by



Brake Staff End of the Reinforced Concrete Car

reinforced concrete posts. Across the end of the car there is a reinforcing rib 6 in. by 1¼ in. located 1 ft. 11¾ in. from the floor. There is also a diagonal rib extending up to the end from the lower end of the body bolster.

The concrete work on this car represents the first commercial application of a new light weight aggregate known as Haydite. This material produces a concrete having a weight of 104 lb. per cu. ft., and a compressive strength of 4,450 lb. per sq. in. in 28-day tests. It is the result of a manufacturing process developed by Stephen J. Hayde, of Kansas City, Mo. The concrete sections in this car are thinner than have ever before been attempted in similar work and for that reason it was decided to use the cement gun for the walls and floors. The cross bearers, however, were poured in the usual manner. The forms were placed on the outside of the car and the skeleton frame and reinforcing were put in position as shown in the illustration. The concrete was then shot on from the interior. The resulting concrete was exceedingly dense and the finish remarkably smooth on the surface which was against the form. The interior surfaces were left practically as produced by the cement gun.

The use of the cement gun increased the specific gravity of the concrete above that computed. This fact, together with the necessity for using heavier steel sections than required in some cases brought the total weight of the car up to 53,600 lb., or 3,600 lb. more than the computed weight. It is evident, however, that with proper facilities for construction another car of this size and design can be made to weigh between 46,000 and 48,000 lb. The conditions under which the first car was built did not permit of certain refinement of design and details of construction, but the plans as now developed for commercial production of such cars have been so advanced in these refinements that future cars will represent a reduction in weight, simplification of manufacture and lower cost.

This car was built with the sanction and co-operation of the United States Railroad Administration, and it was inspected during construction by J. J. Tatum, supervisor of car repairs. It was turned over to the Illinois Central Railroad on March 17, to be used on that line 30 days, after which it will be delivered to the United States Railroad Administration for such service as it may be desired to place it in. Meantime the further development of the concrete car will be handled by the Concrete Car Company of America, Chicago, which has plans completed for the various classes of cars with a view to manufacturing concrete cars on a commercial scale.

Skeleton Steel Frame and Reinforcing in Position in the Forms

Doings of the United States Railroad Administration

Director General Will Issue His Own Statements of Earnings and Expenses With Explanation of Changes

WASHINGTON, D. C.

THE ESPECIAL INTEREST which has recently been displayed in the monthly statistics of railway revenues and expenses has led to a sort of three-cornered competition in statistics between the Railroad Administration, the Interstate Commerce Commission and the unofficial estimators. The commission gives out its monthly statement usually about six weeks after the close of the month. The commission has no press agent and its statement is in the form of a large table containing too many details for newspaper publication and without any interpretation. As a result, the idea which the public gets from these figures varies widely with the newspapers which the public reads the next morning. As it is always possible to get a pretty accurate estimate before the returns of all the roads are in, the newspaper reader may have received his impression from a preliminary estimate and not see the complete returns at all.

In an effort to improve this situation, the Railroad Administration recently decided to give out its own statement of earnings and expenses with some explanation thereof, and for the month of December we had two sets of statistics. As these reached the newspapers on different days the result was merely an addition to the confusion. For the month of January the commission gave out its figures at four o'clock in the afternoon of March 13, showing a net operating income of $18,783,702, after preliminary estimates of approximately $19,000,000 had been widely published. The Railroad Administration thereupon got out its own figures about eight o'clock in the evening and included with them the Interstate Commerce Commission statistics, so that the reading public or the newspaper man who edited the statements might take their choice.

The commission's figures cover 181 Class I roads (those having annual operating revenues above one million dollars), and 17 large switching and terminal companies. This includes a number of Class I roads and switching and terminal companies which are not under federal control. Ten of the Class I roads were relinquished. On the other hand, the statement does not include a large number of Class II and Class III roads and small switching and terminal companies which are under federal control. The Railroad Administration's statement, compiled by the Operating Statistics Section, covers the Class I railroads under federal control and excludes switching and terminal companies, representing a mileage of 230,262, as compared with 233,055 miles covered by the commission's statistics. The Interstate Commerce Commission figures, which are published herewith because they give the subdivisions of revenues and expenses not included in the Railroad Administration's statement, show a net operating income comparable to the standard return guaranteed by the government of $18,783,702, as compared with a deficit of $4,097,117 for the same roads in January, 1918. The term "standard return" does not apply to the roads included in this statement which are not under federal control, but the commission appends a note saying that the average railway operating income for the month of January in the three years 1915, 1916 and 1917 included in the test period of three years ended June 30, 1917, was $254 per mile of line for the United States. Multiplying this by the operated mileage gives an item roughly corresponding to the standard return for the month of about $60,000,000. The net operating income of the Class I railroads under federal control, representing approximately 95 per cent of the net revenues of all properties in federal operation, was $19,350,354, as compared with a deficit of $3,570,299 for the same roads in January, 1918. The standard return applicable to January was $55,331,013, so that the government's deficit as compared with its guarantee to the railways was approximately $36,000,000. The standard return for January is less than one-twelfth of the standard return for the year because traffic is usually lighter in January than in several of the other months, and expenses during the winter are likely to be higher than in some of the other months. The standard return for the Class I railroads for a year is $890,000,000. For the Class I roads and large terminal companies, or approximately the list of roads covered by the Interstate Commerce Commission statistics, it is $904,000,000. For all the roads under federal control it is $928,000,000. The Railroad Administration's compilation for the Class I roads under federal control is as follows:

	January, 1919	January, 1918	Increase or Decrease Amount	Increase or Decrease Per cent
Operating revenues....	$390,745,075	$280,919,510	$109,825,565	39.1
Operating expenses....	354,305,915	266,102,459	88,203,456	33.1
Net operating revenue.	36,439,160	14,817,051	21,622,109	145.9
Taxes, rents, etc.....	17,088,806	18,387,350	(d) 1,298,544	(d) 7.1
Net federal income comparable to standard return guaranteed by Government	19,350,354	(d) 3,570,299	22,920,653	....
Standard return applicable to January.....	55,331,013	55,331,013	.....	....
Operating ratio	90.7	94.7	(d) 4.0	(d) 4.2

(d) Decrease.

The commission's statement includes the following:

Item	Amount 1919	Amount 1918	Per mile of road operated 1919	Per mile of road operated 1918
1. Average number miles operated	233,054.74	233,482.93	.....	.....
Revenues:				
2. Freight	$277,914,392	$188,753,476	$1,192	$808
3. Passenger	86,851,823	66,493,870	373	285
4. Mail	4,346,037	4,574,891	19	20
5. Express	6,334,779	8,797,331	27	38
6. All other transportation....	9,452,933	7,606,611	41	32
7. Incidental	11,468,937	8,867,084	49	38
8. Joint facility—Cr.....	580,867	389,849	3	2
9. Joint facility—Dr.....	163,232	123,769	1	1
10. Railway operating revenues.	396,786,536	285,359,343	1,703	1,222
Expenses:				
11. Maintenance of way and structures	58,274,720	40,882,750	250	175
12. Maintenance of equipment.	99,546,390	67,221,222	427	288
13. Traffic	3,492,403	4,917,663	15	21
14. Transportation	185,720,069	147,476,406	797	632
15. Miscellaneous operations ...	3,607,543	2,980,890	16	13
16. General	10,225,466	8,464,949	44	36
17. Transpn. for investment—Cr.	400,776	422,288	2	2
18. Railway operating expenses.	360,465,815	271,521,592	1,547	1,163
19. Net rev. from ry. operations	36,320,721	13,837,751	156	59
20. Railway tax accruals (excluding "war taxes").....	15,325,889	14,784,037	66	63
21. Uncollectible ry. revenues..	58,056	42,815	.....	.....
22. Railway operating income..	20,936,776	*989,101	90	*4
23. Equipment rents	*824,613	*1,946,604	*3	*8
24. Joint facility rents (Dr. Bal.)	1,328,461	1,161,412	6	5
25. Net of items 22, 23 and 24.	18,783,702	*4,097,117	81	*17
26. Ratio of operating expenses to operating revenues...%	90.85	95.15	.....	.....

*Debit item.

The Railroad Administration's statement says that in comparing the results for January, 1919 and 1918, it should be borne in mind that the 1918 results were very adversely affected by the extreme weather conditions and the serious traffic congestion which obtained at that time; also that neither the increases in freight and passenger rates nor the increases in wages made effective during 1918 are included

in the January, 1918, figures, while both of these factors are present in the January, 1919, figures. Furthermore, the expenses for January this year included approximately $1,500,000 back pay applicable to prior months.

The Railroad Administration's statement also gives a summary of the monthly reports of freight traffic movement and car performance compiled by the Operating Statistics Section for the month of January, showing an increase in the net ton miles of revenue and non-revenue freight of 10 per cent. The detailed statistics were published in the *Railway Age* of March 7. The statement notes that on account of better weather conditions and the relief in traffic congestion it was possible to handle 10 per cent more ton miles with no increase in train miles. There was an increase in the average train load of 58 tons, or 10.2 per cent. There was a slight decrease in carloading from 29.4 tons to 29 tons, which is attributed to the fact that there was a decrease in the percentage of the heaving loading coal tonnage to the total tonnage handled. The decrease in the percentage of loaded to total car miles of 5.4 per cent is ascribed to the freer movement of returning empties this year on account of better weather and traffic conditions.

Railroad Administration and Department of Commerce Disagree on Rates

Contending that the Railroad Administration is operating a public service and is not organized for profit, Secretary Redfield of the Department of Commerce has filed a brief with the Interstate Commerce Commission intervening in behalf of the Solvay Process Company in a complaint against an increase in rates on limestone from Jamestown, N.Y., to Solvay on the Delaware, Lackawanna & Western. The brief, which establishes a precedent of one government department intervening on behalf of a private litigant against another government department, attacks the increased rate on the ground that it is excessive for the railroad and for the shipper, although authorized by the Railroad Administration because of the general need for greater revenues. On May 16, 1918, the 15 cent rate per gross ton was increased to 17 cents. On June 25, 1918, at the time of the general increase in rates, it was further increased to 40 cents, and on September 16 it was reduced to 30 cents per net ton. Secretary Redfield declares in the brief that the 15 cent rate per gross ton was profitable to the railroad, which, he says, has long been one of the most profitable in the United States, and that no complaint appears from either party to the transaction to the effect that the rates were not just and reasonable, and that the only possible reason for more than doubling the rate and the reason definitely stated to the Department of Commerce by the Railroad Administration was the need for greater revenue on the part of the railroads of the country as a whole. It is urged that the action of the administration in doubling a rate "which, in my belief, the testimony shows to be profitable, is an oppressive act, injurious not only to the parties directly concerned, but to the commerce of the country through its normal reactions; that it cannot be justified by the need of general revenues for the entire federal railroad system, and that it should be revoked and a rate substantially the same as the original rate should be established."

The secretary declares that it is the department's duty to foster transportation facilities as well as commerce, and that it is clearly its normal duty to take such steps as are within its power to insure that transportation is not encumbered with unjust and unreasonable restrictions and is facilitated as much as possible. The brief declares that the secretary appears for the whole people of the United States, and he says:

"It cannot be argued that it is the obligation of the Railroad Administration to operate at a profit. It has the support of public funds and has, as have other public services, the basis of the taxing power on which to rest. It has, as a matter of fact, received a large sum from the public treasury. Its relation, therefore, to the commerce of the country is that of a servant of that commerce, and in so far as for the purpose of revenue it may take steps injurious to the commerce of the country it departs from its essential duty and it becomes the obligation of that branch of the government which is charged with the fostering and promotion of commerce to point out the facts and ask for their correction. It may not be justly pleaded on behalf of the Railroad Administration in the present cause that a sufficient reason for the act complained of is the need for revenue. The essential purpose of the Railroad Administration as a public service is not to get revenue, but to serve the commerce of the country."

Railroad Administration officers believe that Secretary Redfield has failed to read the provisions in section 10 of the federal control act, which authorizes the President to initiate rates, that in determining any question concerning rates initiated by the President the Interstate Commerce Commission "shall give due consideration to the fact that the transportation systems are being operated under a unified and co-ordinated national control and not in competition," and "that when the President shall find and certify to the Interstate Commerce Commission that in order to defray the expenses of federal control and operation fairly chargeable to railway operating expenses, and also to pay railway tax accruals other than war taxes, net rents for joint facilities and equipment, and compensation to the carriers, operating as a unit, it is necessary to increase the railway operating revenues, the Interstate Commerce Commission in determining the justness and reasonableness of any rate, fare, charge, classification, regulation, or practice shall take into consideration said finding and certificate by the President, together with such recommendations as he may make."

Statement to Clerks Threatening Strike

Director General Hines issued a statement on March 13 regarding the threatened strike of clerks in the Southeast, saying in part:

"I regret to learn that efforts are being made to prevail on various railroad employees in the Southeast to quit the service of the government and thereby hamper the operation of the railroads because of a dispute which has arisen between certain clerks and their superior officers. I call attention of the employees to the fact that adequate machinery has been provided by the United States government through the Railroad Administration to deal with all cases of disputes and grievances and that employees ought to submit their grievances in accordance with this machinery and not otherwise.

"The trouble arose through certain local organizations of clerks on the Nashville, Chattanooga & St. Louis demanding the immediate discharge of the federal auditor of that railroad. These clerks did not resort to Board of Adjustment No. 3 in Washington, which consists of four representatives of the employees and four representatives of the management, and which has been created to deal with all such grievances. They refused to resort to this machinery notwithstanding the fact that the Brotherhood of Railway Clerks of which they are members agreed to submit all grievances to that board and has a representative on that board.

"It is indispensable that these problems shall be handled in an orderly way. It is of the highest importance to the employees themselves that this orderly procedure shall be adopted in all cases and that they shall exercise the patience and self-restraint necessary to permit of the carrying out of these orderly practices. If this is not done the effort which the United States Railroad Administration has made to recognize and promote the just interests of labor will be rendered unsuccessful and the employees who are responsible for interfering with these orderly processes will put themselves in a

position before the public which will react injuriously upon the employees and their future interests.

"I believe that any employee who will think over this matter will agree that during the last 10 months more progress has been made toward improving the wages and working conditions of railroad employees as a whole than was ever made before. This has been practicable because the railroads have been under a unified management, which has had as one of its leading purposes the recognition of the just interests of the employees and the provision of reasonable wages and conditions for them. Necessarily, conclusions must be reached in cases of dispute by the machinery thus provided. While in specific cases there may be some delay in dealing with such matters the delay is far less than would have been involved under former conditions. In fact, in the past labor movements have in many cases taken from one to two years, have involved enormous costs to the labor organizations, and even then have frequently produced exceedingly small benefits. Whatever delay is incident to the method of the central administration is relatively small compared with the delays which would have been experienced under other conditions. No business can be successfully conducted without the exercise of proper authority and discipline. This is true particularly of the railroad business. Ample machinery has been created by the central administration to correct instances of abuse of authority or the exercise of disciplinary measures in an unfair way. It is indispensable that these orderly methods of settling these questions shall be followed pending disposition of these matters in the reasonable ways which have been carefully worked out. There must be a recognition of authority and a submission to discipline. Otherwise the railroad business would become chaotic and the public, which in the last analysis has to pay the bill, would resent the resulting excessive costs and inefficient service and the reaction would be exceedingly unfavorable to the employees themselves."

Passenger Traffic Statistics

The Operating Statistics Section has also compiled its monthly statement showing the number of passengers carried one mile for the month of December and the calendar year 1918. The passenger mileage for December shows a decrease of 4 per cent. For the year there was an increase of 3,125,000,000 passenger miles or 7.9 per cent. The figures by regions and districts are as shown in the double-column table.

PASSENGERS CARRIED ONE MILE

Railroad	Average miles operated	Month of December, 1918				Twelve months ended December 31, 1918			
		1918	1917	Increase or decrease	Per cent	1918	1917	Increase or decrease	Per cent
Total, New England District	8,143	289,164,888	299,520,945	d 10,356,057	d 3.5	3,383,880,976	3,453,028,601	d 69,147,625	d 2.0
Total, Central District	21,928	491,657,970	491,035,144	622,826	0.1	5,780,421,930	5,771,951,663	8,470,267	0.1
Total, Ohio-Indiana District	7,767	90,687,405	99,456,807	d 8,769,402	d 8.8	1,064,725,085	1,061,986,025	2,739,060	0.3
Total, Eastern Region	37,838	871,510,263	890,012,896	d 18,502,633	d 2.1	10,229,027,991	10,286,966,289	d 57,938,298	d 0.6
Total, Allegheny Region	19,593	745,922,726	702,396,451	43,536,275	6.2	9,112,978,679	7,979,091,979	1,133,886,700	14.2
Total, Pocahontas Region	4,776	82,740,530	74,010,541	8,729,989	11.8	892,376,054	691,272,153	201,103,901	29.1
Total, Southern Region	37,308	605,074,525	594,172,894	10,901,631	1.8	6,471,033,501	5,073,165,885	1,397,867,616	27.6
Total, North Western Region	46,353	363,141,850	421,650,311	d 58,508,461	d 13.9	4,560,600,656	4,771,663,459	d 211,062,803	d 4.4
Total, Central Western Region	51,170	606,363,669	706,531,284	d 100,167,615	d 14.2	7,558,445,439	7,296,193,588	262,251,851	3.6
Total, South Western Region	31,683	327,796,287	364,023,394	d 36,227,107	d 10.0	3,781,440,028	3,381,843,921	399,596,107	11.8
Grand total, all regions	228,721	3,602,559,850	3,752,797,771	d 150,237,921	d 4.0	42,605,902,348	39,480,197,274	3,125,705,074	7.9

d Decrease.

Wage Increase for Railroad Police

The director general has approved the recommendation of the Board of Railroad Wages and Working Conditions pertaining to patrolmen and others of the police department, effective as of January 1. A variety of police organizations on the railroads under federal control having been in effect, the first problem confronting the administration was to work out a uniform organization in order that adjustments in pay might be arrived at for corresponding positions; and also in order that the employees in this department might have their pay adjusted to conform with the rates of pay in other departments.

The order provides a minimum hourly rate of 45 cents per hour and a maximum of 55 cents per hour for patrolmen who are assigned to a restricted territory, with a minimum of eight hours per day and overtime at the pro rata rate for the ninth and tenth hours and time and one-half thereafter. These men formerly received monthly wages ranging from $60 to $110. Under the new rate these men receive pay ranging from $85 to $112 a month on an eight-hour day basis. Proportionate increases, but on a monthly basis, are provided for lieutenants and for sergeants whose duties require traveling and whose hours cannot be regulated. The regional directors will have authority to apply the monthly wages according to the responsibility of the individual positions.

The order will apply to approximately 7,000 patrolmen and 1,000 lieutenants and sergeants.

Signalmen Ask Wage Increase

A request for further increases in wages and improved working conditions was submitted to Director General Hines on March 14 by representatives of the Brotherhood of Railroad Signalmen, claiming to represent 15,000 employees, after a convention held in Washington attended by about 100 delegates.

Contracts Signed

The Railroad Administration has signed a compensation contract with the Central of Georgia providing for an annual rental of $3,444,158.

Contracts have also been executed this week with the Louisville & Nashville providing for a compensation of $17,310,494, the Pennsylvania Lines West for $15,154,719, the Louisville, Henderson & St. Louis for $343,915, the Salina Northern for $15,000 and also co-operative short line contracts with the South Manchester and the Greene County.

Purchasing Division to Be Reorganized

Following the resignation of John Skelton Williams as director of the Division of Finance and Purchases and the creation of two new divisions, the purchasing organization of the Railroad Administration is being reorganized. An advisory committee on purchases will be created with Mr. Williams as chairman and R. S. Lovett, president of the Union Pacific, and Henry Walters, chairman of the Atlantic Coast Line, as the other members.

Campaign Against Car Thefts

The activity of the Railroad Administration in its campaign against car thefts is indicated in a report showing that in the 10 months ended February 1 a total of 14,114 arrests for car thefts were made by the railroad secret service. Of these, 5,475 were of railroad employees. There were 9,891 convictions and $838,000 of the $1,120,000 worth of stolen property was recovered.

General News Department

The Fourteenth Engineers, a railroad regiment composed of men from the Boston & Maine, the Boston & Albany, and the New York, New Haven & Hartford, is expected to reach home from France about April 1.

The American Train Despatchers' Association, D. L. Darling, secretary-treasurer, Northern Pacific Railway, Spokane, Wash., will hold its annual convention at the Hotel La Salle, Chicago, June 17, 18, 19 and 20.

Thirteen new passenger trains appear on the timetables of the Cleveland, Cincinnati, Chicago & St. Louis, which are to be put into effect on April 6. It is said that these trains will increase the annual train mileage by 412,224 miles.

As a token of respect to the memory of Edward F. Kearney, late president of the Wabash, all trains on that road were stopped for five minutes at 2 p. m., on March 13, at which hour his funeral was held at New Orleans, La.

By a fire at the Inman yard of the Southern Railway, near Atlanta, Ga., on the night of March 16, eighty loaded cars, twenty empty cars, the freight transfer shed, and other property were destroyed; estimated loss, $1,500,000.

The car repair shops of the Delaware & Hudson at Carbondale, Pa.—two buildings known as No. 18 and No. 20—were destroyed by fire on March 15. About 200 men are out of work temporarily. These buildings were of brick, 400 ft. long and 40 ft. wide.

Three hundred workmen, engaged in laying a second track for the Cleveland, Cincinnati, Chicago & St. Louis, near Winchester, Ind., were dismissed by the contractors on March 13, for the reason, it is said, that the Railroad Administration has held up the appropriation for the work.

Better looking uniforms will be required of the passenger trainmen on the Pittsburgh Division of the Pennsylvania Railroad this season; in other words, according to a notice which has been issued by the trainmaster, inferior grades of cloth, which were tolerated last year, will not be acceptable this year.

The State Tax Commission of Minnesota reports that railroads operating in the state, paying under the state law a tax of 5 per cent on gross earnings, in lieu of other taxes, earned in 1918 a total of $150,548,762 and are assessed a tax of $7,527,438, as compared with $124,505,394 earnings and a tax of $6,225,270 in 1917.

Excessive demurrage charges is the subject of a letter which has been sent to the Division of Public Service, Washington, by the National Bureau of Wholesale Lumber Distributors, C. W. Campbell, secretary, Washington, D. C., recommending the abolishment of the present demurrage charges, as promptly as possible, and "a reduction of the rates to the normal pre-war condition." The lumbermen believe that 75 per cent of the delays to cars are chargeable to inefficiency on the part of the railroads, or to embargoes, congested terminals, etc. They say that when cars of lumber are delayed the consignee frequently has to supply his needs in some other market, and then has to refuse the car; and the wholesale distributor has to dispose of it at a great disadvantage. These protestants submitted to the high rates during war wholly from the motive of patriotism; and they feel sure that now all other lumber interests will join them in the present requests.

Thomas F. Blewitt, division superintendent of the Brooklyn Rapid Transit Company, Brooklyn, N. Y., tried in the Supreme Court of the State on a charge of manslaughter in connection with the derailment on that road in Brooklyn, on November 1, last, when 92 passengers were killed, was acquitted on March 18, the jury having deliberated about three hours. The court (Justice Seeger), in charging the jury, said that Blewitt was charged with the responsibility of securing competent motormen by lawful means, but that a mere violation of the company's rules in this respect was not to be interpreted as a violation of statute. If the jury found that the passenger upon whose death the indictment was based, was killed because of Blewitt's failure to exercise the utmost care, so far as foresight could go, Blewitt should be found guilty. Blewitt was responsible for knowing whether Luciano (the motorman who ran at excessive speed, causing the derailment at a sharp curve) was competent, but could not be held responsible if Luciano, though generally competent, had been careless on this occasion. Evidence adduced by the prosecution to show that other motormen put on as strikebreakers were incompetent or inexperienced could not be taken into account in judging Luciano's competence.

Folkestone to Paris in 74 Minutes

According to a press despatch of March 18, Major General John E. B. Seely, of the British War Office, on March 16, flying with a favorable wind, made an airplane trip from Folkestone, England, to Paris, France, 172 miles, in one hour, fourteen minutes.

State R. R. Commissions

Following a conference of the railroad commissioners of Washington, Oregon, and Idaho, the Public Service Commission of the State of Washington has decided to bring suit at once against the Railroad Administration to test the legality of the administration's control of purely intra-state freight rates. W. D. Tanner, attorney general of the State of Washington has resigned from his office to take charge of this litigation.

Railroad Clocks to Be Set Ahead March 30

Director General Hines has issued General Order No. 61, similar to that which was issued last year, ordering all railroad clocks to be set ahead one hour at 2 a. m. on Sunday, March 30, in accordance with the Daylight Saving Law. The instructions for making the change are so worded as to provide a standing rule for both Spring and Autumn as long as federal control continues.

Employment for Soldiers

For the purpose of meeting the emergency caused by the radical curtailment of the machinery of the United States Employment Service because of lack of funds, the Council of National Defense has announced the formation of an Emergency Committee on Employment for Soldiers and Sailors, including representatives of the various government departments. The chairman of the committee is Col. Arthur Woods, and the secretary will be E. H. Greenwood, who has been associated with the Department of Labor in its employment work. A representative of the Railroad Administration probably will be added to the committee.

Safety Rally at Detroit

Officers and employees of the Pere Marquette, the Grand Trunk, the Wabash and the Detroit & Toledo Shore Line had a safety rally at the Detroit (Mich.) Board of Commerce on February 25. The meeting was attended by about 1,750 railroad men and members of their families. There were three or more delegates from each of the 25 safety committees on the associated lines. S. M. Nowell, superintendent of the Wabash-Pere Marquette Joint Terminals, presided. Addresses were made by F. H. Alfred, federal manager, A. F.

Duffy, manager of the Safety Section of the Railroad Administration, R. S. Jarnagin, regional supervisor of safety, and other officers and employees of the above-named lines.

General Foremen's Association

The annual convention of the International Railway General Foremen's Association will be held at the Hotel Sherman, Chicago, September 2, 3, 4 and 5. The topics to be discussed are as follows:

1. Welding of locomotive cylinders and other autogenous welding.
2. Safety-first in shop and enginehouse service.
3. Draft gears.

The association has received permission from the Railroad Administration to hold this convention and a large attendance is to be desired from both the locomotive and the car departments.

Space for June Convention Exhibit Well Taken

The Railway Supply Manufacturers' Association announces that at the assignment of space in Pittsburgh, February 14, there was sold and assigned over 80,000 square feet. The available space is a trifle less than 89,000 square feet, leaving less than 10 per cent for such exhibitors as will come in. This available space includes all of the space heretofore used in previous years together with a number of additions, which the committee found possible to use. The committee is looking over the pier with view of providing additional space if possible, as indications are that it can be sold to exhibitors if provided. Edmund H. Walker, president of the association, in announcing the above, says that "the success of the June meeting from an exhibition standpoint is assured."

Rock Island Outlines Railroad Legislation

Charles Hayden, president of the Chicago, Rock Island & Pacific, has sent out, on behalf of the Board of Directors of the road, a circular letter calling on stockholders to embrace the present opportunity for the enactment of favorable railroad legislation and asking that they co-operate with their congressmen for the passage of legislation based upon the principles contained in Mr. Hayden's circular.

These principles are briefly as follows:

1. No necessity for extension of the present control beyond 21 months after the final declaration of peace, which should be ample time for the legislators of this country to pass such legislation as is necessary. Naturally, perfecting legislation should be passed from year to year thereafter, just as perfecting legislation has been passed in respect to the Federal Reserve Bank Act. . . .
2. Private operation and ownership of the railroads rather than government ownership, but such private operation to be under efficient regulation, that shall be constructive rather than merely punitive.
3. The railroads should not be returned to their owners without new legislation looking to improved conditions, including:
   (a) To avoid unnecessary and wasteful competition, the Sherman law should be amended to permit mergers, consolidations and the pooling of facilities, equipment and traffic, under supervision of the federal government.
   (b) Federal control over rates and regulations should be in the same hands as control over wages, and the law should require that wages be taken into account in fixing rates.
   (c) The federal government should have exclusive jurisdiction over the issue of securities necessary for improvements and refunding purposes; also over rates and other matters affecting carriers, leaving only strictly local matters to state regulation.
4. Owners of railroad securities should have representation on the federal governing body.
5. If private capital is to be depended upon for developing and extending the railroads, any scheme of legislation must be so framed that sufficient incentive will be offered to such private capital. It is necessary not only to protect private capital that already is invested, but to make it attractive for additional capital to seek railroad investments. In order to accomplish this double object it will be absolutely necessary either to guarantee a fixed interest return on investments or to establish and maintain a rate structure which will permanently assure an ample return on property investment of the railroads as a whole.
6. Federal government supervision should extend to water routes and other trade routes that compete with the railroads.

Mrs. Calhoun

[Atlanta Constitution, March 15]

Defying alleged threats of strikers who Tuesday morning at 10 o'clock laid down their pens and closed up their typewriters when the Brotherhood of Railway Clerks walked out, Mrs. Lowndes Calhoun, the pretty little golden-haired clerk at the information desk at the Terminal station, is still on the job, directing thousands of puzzled travelers who daily call at the desk. Keeping guard over her are several plainclothes men, and backing her up in her stand is the Southern railway. Wednesday and Thursday when there were no ticket agents, no train callers and no gatekeepers as a result of the walkout, hundreds of worried passengers groped hopelessly about in the resulting chaos; and the little information lady, the only employee in the station, stood serenely behind her desk, directing, advising, assuring the masses who crowded about her. On Friday, though her face betrayed the fact that the extra work had wearied her, she was still directing and still smiling. The new workers who had been gathered from the passenger service to take the places of the strikers were in strange surroundings with strange tasks to perform and the only one to turn to for advice was the little woman at the information desk.

Pointers for the Yard Master

[From a Paper by H. D. McKee.]

Be reasonable, respectful and considerate with your men and they will respect and obey you.

Have no favorites and permit no one to cater to you; and thereby avert petty animosities. Beware of the man that kow-tows and scrapes his feet; he can't be trusted.

There is no more important factor in the yard than your call boys. The call boy is frequently in position to add to or lessen your troubles. Respect the boy and make him feel that he is of some importance to you, and instead of being a boy he will prove up as one of your best men. See that the men treat him in like manner.

Make a big effort to cultivate friendly relations between all the members of your force and the roadmen entering your yard. You may wish a car picked up or set out after the train is made up and in charge of road crew at a time when yard engine is unavailable; it is at this particular time that trainmen are either your best or your worst friends.

Get on the inside with the roundhouse foreman and his men, particularly the car inspector; try to get your men inside with you also. If you succeed you will get your power faster and have fewer cars to throw out of the middle of made-up trains.

Be good to the engineers; many of them are good workmen and fine fellows; besides, you need them in your business.

Strike of Clerks on the N. C. & St. L.

Clerks in the employ of the Nashville, Chattanooga & St. Louis, and the Tennessee Central, members of the Brotherhood of Railway Clerks, several hundred in number, left their work on Tuesday, March 11, at 10 a. m., striking because of the refusal of the federal manager to dismiss the federal auditor, A. P. Ottarson, who, the clerks claimed, had dealt unfairly with them in the interpretation of orders respecting increases in wages. Freight service was seriously interrupted and embargoes were issued against live stock and perishable freight. Officers of the road employed new men in place of the strikers so far as they could, and on Friday it was reported that many of the vacancies had been filled. At Nashville conditions were reported "improving."

In Atlanta the clerks of other roads struck in sympathy with those of the Nashville, Chattanooga & St. Louis; but on Monday, the 17th, it was reported that these other clerks, 1,500 of them, had returned to their desks. They had been out, however, two or three days and had caused serious disturbance to traffic, passenger as well as freight. Important ticket offices were without attendants for two days.

W. L. Mapother, federal manager of the road, issued a statement to the effect that the action of the clerks on his road was not approved by the chief officers of their brotherhood. A statement by Director General Hines admonishing the clerks to abandon their irregular proceedings and attend to their duties is printed in another column of this paper. At some small places strikers were reported as returning to work, but as to how many heeded Mr. Hines' appeal no information is available. On Wednesday and Thursday of this week representatives of the clerks were in conference with the director general and his lieutenants at Washington.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1919

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses					Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of									
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Denver & Salt Lake	255	$113,129	$17,814	$136,684	$55,102	$96,719	$921	$93,750	$7,104	$253,597	185.53	—$116,913	$9,000	—$125,924	—$25,416
Detroit & Mackinac	381	63,954	29,166	100,785	18,191	44,153	5,058	65,135	19,542	152,078	150.89	—51,292	7,073	—58,367	—24,854
Detroit & Toledo Shore Line	61	193,433	.....	205,124	11,807	16,242 —	386	60,385	1,449	90,271	44.01	114,853	7,250	107,603	79,692
Detroit, Grand Haven & Milwaukee		Included in	Grand Trunk	Western.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit, Toledo & Ironton	457	328,921	11,697	362,987	96,109	106,752	2,602	186,675	13,727	405,865	111.81	—42,878	8,900	—51,778	83,241
Duluth & Iron Range	292	61,408	23,654	102,528	47,465	88,827	299	124,222	11,978	272,786	266.06	—170,258	6,087	—176,463	—14,488
Duluth, Missabe & Northern	410	127,233	38,082	192,050	154,339	121,660	2,506	156,405	24,524	460,892	239.98	—268,843	9,000	—277,844	—3,558
Quincy, Omaha & Kansas City	255	60,565	24,347	84,483	21,332	24,447	168	55,628	940	102,515	121.34	—18,032	3,003	—21,065	—2,464
South Buffalo Ry	35	54,353	.....	167,743	12,894	21,372	282	77,746	1,758	114,052	67.99	53,691	2,800	50,891	59,091
Duluth, South Shore & Atlantic	599	231,844	79,177	328,127	49,209	68,182	5,942	194,549	10,311	332,646	101.38	—4,519	19,000	—23,519	23,827
Duluth, Winnipeg & Pacific	175	138,851	23,995	166,747	15,252	31,163	2,259	83,054	6,523	138,366	82.97	28,381	8,358	20,023	25,163
East St. Louis Connecting Ry	3	.....	.....	98,596	10,954	45,287	372	66,851	3,223	126,686	128.45	—28,090	2,000	—30,090	—2,023
El Paso & Southwestern Co	1,027	859,356	167,313	1,080,832	133,356	211,628	8,629	306,334	24,380	691,008	63.93	389,825	90,899	298,891	—180,941
Elgin, Joliet & Eastern	810	1,616,124	9	1,952,205	150,506	466,956	4,831	756,911	25,966	1,404,980	71.96	547,225	53,250	493,974	748,079
Erie	1,989	5,514,407	928,247	6,954,626	745,434	2,529,945	57,023	3,862,287	201,782	7,434,488	106.89	—479,863	197,350	—679,602	648,498
Florida East Coast	764	553,703	354,492	1,008,152	157,961	186,105	8,663	430,632	20,721	810,866	80.43	197,293	38,816	158,297	—114,078
Ft. Smith & Western	253	80,844	27,121	114,334	18,498	28,490	3,489	46,633	6,048	103,372	90.41	10,963	5,000	5,963	—5,090
Fort Worth & Denver City	454	530,206	185,983	773,786	75,678	186,786	939	323,675	20,853	610,705	7,892	163,080	19,250	143,825	—18,075
Fort Worth & Rio Grande	2,135	40,454	43,399	91,089	21,148	20,574	2,782	71,971	3,545	114,456	125.65	—23,367	3,195	—26,575	—14,462
Fonda, Johnstown & Gloversville	88	26,861	62,967	93,504	9,802	9,102	469	38,975	4,987	63,333	67.73	30,171	4,900	25,271	—365
Galveston, Harrisburgh & San Antonio	1,382	1,301,651	413,585	1,815,651	275,392	340,781	21,506	688,066	53,551	1,393,700	76.76	421,952	52,205	369,460	—284,518
Galveston Wharf	13	.....	.....	86,013	12,111	715	24	38,893	1,233	62,699	72.89	23,314	11,400	11,914	—8,674
Georgia	328	283,700	223,345	545,491	55,645	84,291	5,189	244,934	16,482	406,703	74.55	138,789	6,950	131,837	19,019
Georgia & Florida	348	54,059	20,180	78,846	21,869	17,210	1,762	48,619	5,437	94,897	120.35	—16,052	4,200	—20,268	—21,688
Georgia, Southern & Florida	402	235,461	140,547	408,907	65,133	100,986	5,297	173,524	9,016	352,718	86.25	56,189	13,750	42,439	18,665
Grand Rapids & Indiana	569	335,762	133,146	514,778	99,602	152,539	10,407	298,885	23,125	585,767	113.79	—70,989	24,798	—95,794	—13,914
Grand Trunk Lines in New England	172	269,389	22,412	336,770	83,145	40,216	2,830	304,458	13,044	474,861	141.00	—138,091	11,500	—149,591	—42,235
Grand Trunk Western	1,002	1,224,676	269,524	1,623,464	212,593	412,867	8,666	802,346	33,570	1,481,492	91.25	141,972	50,150	91,704	466,588
Great Northern	8,258	6,888,697	1,296,383	8,874,400	1,232,728	2,018,054	44,384	3,877,818	156,245	7,426,616	83.68	1,447,790	510,414	936,707	1,234,280
Gulf & Ship Island	307	119,694	39,039	175,865	52,014	40,156	2,980	78,109	8,254	181,878	103.42	—6,012	10,471	—16,485	—46,934
Gulf, Colorado & Santa Fe	1,917	1,015,956	374,011	1,440,013	278,411	235,954	11,042	585,794	46,165	1,154,498	80.17	285,114	71,168	213,816	—191,611
Gulf, Mobile & Northern	424	142,217	39,630	194,666	40,793	51,975	4,709	94,381	9,694	200,944	103.22	—6,278	9,929	—16,208	—38,685
Hocking Valley	350	396,667	91,284	509,764	134,192	316,507	5,668	261,507	22,355	739,552	145.08	—229,787	57,066	—286,855	—105,908
Houston, East & West Texas	190	143,327	40,509	192,978	31,678	13,303	626	83,117	4,218	132,944	68.89	60,035	6,158	53,861	—686
Houston & Texas Central	856	468,037	175,437	685,635	129,564	114,273	10,226	301,463	18,664	574,047	83.72	111,588	34,024	76,955	—126,847
Illinois Central	4,783	6,023,206	2,016,312	8,503,957	1,508,755	2,344,005	59,148	4,004,447	234,716	8,217,705	96.63	286,252	407,500	—122,434	235,127
Indiana Harbor Belt	116	.....	.....	605,846	84,946	117,347	1,556	345,662	14,643	564,155	93.11	41,691	10,104	31,587	258,116
International & Great Northern	1,159	795,233	250,650	1,105,736	256,982	211,665	13,563	560,719	35,457	1,082,754	97.92	22,981	30,000	—7,020	—221,964
Kanawha & Michigan	176	193,915	61,569	267,965	61,045	133,327	2,182	149,377	13,080	359,012	133.98	—91,047	17,885	—108,933	—102,320
Kansas City, Mexico & Orient	272	46,507	11,341	60,791	33,027	48,605	967	57,666	6,420	146,686	241.29	—85,895	6,281	—92,197	—77,048
Kansas City, Mexico & Orient of Tex	465	57,270	13,503	75,004	32,705	52,060	1,398	62,699	6,013	154,876	206.49	—79,872	4,985	—84,857	—79,149
Kansas City Southern	774	954,949	210,426	1,263,651	226,714	256,392	16,957	521,783	42,054	1,060,602	83.93	203,050	89,029	113,529	—159,575
Kansas City Terminal Co	24	.....	.....	107,670	9,973	31,571	.....	63,209	1,474	107,348	99.70	323	20,400	—20,077	—10,191
Lake Erie & Western	900	675,341	53,232	764,567	136,622	258,839	12,500	375,230	24,302	804,723	105.25	—40,156	25,000	—65,249	—11,567
Lehigh & Hudson River	96	196,632	4,030	206,406	20,408	67,669	1,254	105,820	5,720	200,872	97.31	5,534	6,000	—467	—12,507
Lehigh & New England	224	274,394	1,662	307,128	44,863	58,502	2,036	116,357	9,685	231,396	75.34	75,732	8,610	67,121	81,921
Lehigh Valley	1,436	4,217,229	390,276	5,062,565	551,270	1,459,188	31,777	2,612,026	116,457	4,786,015	94.54	276,550	146,725	129,717	1,115,016
Long Island	398	432,384	915,404	1,499,583	264,150	295,404	9,795	967,571	45,404	1,597,783	106.54	—98,200	103,052	—201,447	144,439
Louisiana Ry. & Nav. Co	349	217,905	42,022	273,245	62,831	55,960	4,239	152,574	7,915	283,518	103.75	—10,273	14,000	—24,273	—52,268
Los Angeles & Salt Lake	1,168	938,786	315,956	1,300,742	166,034	258,861	15,831	446,713	29,183	950,942	73.11	349,799	60,572	289,073	160,519
Louisiana & Arkansas	302	114,014	34,246	156,193	36,146	35,024	2,448	74,793	5,765	154,178	98.70	2,014	10,340	—8,327	—35,733
Louisiana Western	207	218,770	110,235	338,092	40,811	57,535	4,282	108,793	11,392	224,662	66.44	113,429	10,656	102,734	—41,940
Louisville & Nashville	5,013	5,713,706	2,086,049	8,256,212	1,368,394	2,162,613	84,688	3,670,745	179,899	7,502,813	90.87	753,399	260,736	491,073	—100,065
Louisville, Henderson & St. Louis	199	174,184	55,419	238,688	50,134	31,045	7,498	91,660	7,572	187,908	78.72	50,780	4,000	46,701	33,398
Maine Central	1,216	1,031,037	319,881	1,416,416	202,673	347,192	10,161	922,141	42,845	1,525,375	107.69	—108,960	75,623	—184,583	119,230
Maryland, Delaware & Virginia Ry. Co.	82	57,355	24,946	83,469	8,354	11,118	525	61,783	1,922	83,703	100.28	—235	1,733	—1,968	—33,241
Michigan Central	1,862	4,210,511	1,365,139	5,900,537	809,644	1,157,070	65,036	2,388,712	99,826	4,596,123	77.89	1,304,414	160,000	1,143,960	1,397,308
Midland Terminal Ry. Co	56	45,531	3,554	50,727	—1,863	7,829	807	22,262	2,900	31,936	62.95	18,791	3,000	15,791	(c)
Mo., Kansas & Texas Ry. of Texas	1,796	993,962	568,715	1,740,155	314,055	393,219	19,902	1,030,847	77,597	1,850,499	106.34	110,345	51,377	—162,422	—247,852
Midland Valley	387	213,642	76,961	304,452	59,990	64,519	1,437	132,558	11,826	270,330	88.78	34,122	6,713	27,410	—10,402
Mineral Range	101	97,759	695	100,252	9,984	28,095	301	47,290	1,072	86,742	86.52	13,510	3,300	10,210	15,120
Minneapolis & St. Louis	1,646	685,278	209,115	925,822	190,469	289,980	13,871	577,955	30,516	1,103,012	119.14	—177,190	57,003	—234,361	—305,909
Minn. & International Ry. Co	194	47,908	24,682	76,837	14,455	14,854	505	45,349	3,974	79,137	102.99	—2,300	3,822	—6,125	—11,063
Minn., St. Paul & Sault Ste. Marie	4,243	2,462,042	565,801	3,175,355	368,049	741,940	21,149	1,406,715	65,429	2,609,710	82.18	565,646	187,693	377,943	488,314
Missouri, Kansas & Texas R. R	1,714	1,904,133	618,973	2,623,358	674,350	703,335	20,695	1,078,509	82,318	2,567,416	97.86	55,942	95,355	—39,524	—96,077
Missouri, Okla. & Gulf	332	76,807	18,658	101,089	37,970	43,681	1,347	75,496	7,471	166,175	164.38	—65,087	8,500	—73,621	—49,953
Missouri Pacific	7,108	4,769,223	1,578,739	6,810,632	1,606,454	1,655,571	75,379	3,318,983	262,014	6,889,019	101.15	—78,387	280,000	—360,413	—959,482
Missouri & N. Arkansas	365	91,309	37,520	139,885	82,167	39,908	1,004	61,601	7,166	191,678	137.02	—51,794	6,242	—58,049	—46,160
Mobile & Ohio	991	956,202	191,375	1,215,144	174,955	421,633	24,752	592,489	39,041	1,257,284	103.46	—42,140	47,151	—89,307	—76,467

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1919—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Monongahela	108	$278,171	$20,118	$305,361	$84,474	$28,537	$733	$109,157	$7,248	$230,148	75.36	$75,214	$5,000	$70,214	$72,305
Monongahela Connecting	5	.....	.....	213,515	36,444	75,613	519	132,103	7,402	252,081	118.06	—38,567	2,215	—40,782	—40,496
Montour R. R.	54	77,677	1,730	84,158	23,666	52,370	1,677	29,539	6,351	114,746	136.34	—30,588	2,286	—32,873	—14,340
Morgan's La. & Tex. R. R. & S. S. Co.	400	489,736	164,879	696,359	89,594	149,313	6,948	304,197	18,956	571,020	82.00	125,340	30,157	95,061	—93,168
Nashville, Chattanooga & St. Louis	1,247	933,494	446,610	1,513,977	306,885	482,248	32,863	762,191	38,926	1,638,146	108.20	—124,169	50,000	—174,310	—237,041
Nevada Northern	168	163,289	14,054	182,836	17,565	26,152	1,030	50,451	4,996	100,387	54.91	82,449	18,320	64,129	—52,364
Newburgh & South Shore R. R. Co.	7	.....	.....	129,675	16,318	30,096	.....	70,541	3,575	120,530	92.94	9,144	7,299	1,844	32,015
New Orleans Great Northern	284	126,441	36,112	176,214	36,059	35,795	1,354	73,087	5,862	152,535	86.56	23,678	10,225	13,384	7,547
New Orleans & North Eastern	203	341,253	104,287	505,694	35,943	115,622	6,547	251,058	13,278	428,771	84.78	76,923	28,357	48,559	—21,033
New Orleans, Texas & Mexico	191	62,200	27,347	96,640	33,469	35,577	2,457	53,045	6,935	133,250	137.88	—36,611	10,000	—46,611	—97,321
New York Central	6,075	16,018,486	6,006,312	24,821,606	3,348,917	4,982,111	197,999	11,040,805	608,029	20,536,171	82.74	4,285,435	1,021,947	3,263,314	4,276,242
New York, Chicago & St. Louis	572	1,869,519	128,957	2,069,363	260,318	427,166	28,358	887,825	56,528	1,663,456	80.38	405,907	55,000	350,903	654,413
New York, New Haven & Hartford	1,965	3,456,429	3,279,601	7,336,774	999,529	1,935,428	36,319	4,254,268	285,689	7,649,367	104.26	—312,594	266,000	—583,226	—523,183
New York, Ontario & Western	567	553,450	126,428	793,523	117,337	255,230	6,647	429,278	29,362	837,854	105.58	—44,331	24,700	—69,031	—66,633
New York, Philadelphia & Norfolk	121	448,453	119,134	615,810	52,547	129,820	8,698	263,819	11,267	485,718	78.87	130,092	17,020	113,072	155,480
New York, Susquehanna & Western	135	243,003	50,881	333,066	30,462	41,826	1,233	213,303	7,373	294,198	88.33	38,868	12,747	26,109	60,350
Norfolk & Western	2,087	4,989,617	275,143	6,100,013	857,785	1,845,119	33,153	2,420,687	71,995	5,247,770	86.02	852,243	260,000	592,185	196,676
Norfolk Southern	907	318,513	129,675	481,422	96,936	114,776	7,917	260,237	22,535	502,785	104.43	21,363	20,000	41,377	—37,067
Northern Alabama	112	95,805	12,574	111,656	27,362	4,129	1,145	89,051	1,902	123,589	110.68	—11,933	3,400	—15,333	—32,871
Northern Pacific	6,566	6,104,209	1,456,702	7,934,352	960,947	1,365,232	71,421	3,275,599	186,903	5,965,100	75.18	1,969,252	524,232	1,444,647	641,198
Northwestern Pacific	507	226,662	125,552	383,405	106,019	65,303	5,228	204,833	12,587	396,071	103.31	—12,666	22,069	—34,736	—89,408
Oregon Short Line	2,347	2,289,022	465,627	2,945,533	540,151	491,378	11,616	947,150	85,839	2,129,717	72.30	815,816	177,964	637,707	—102,088
Oregon-Washington R. R. & Nav. Co.	2,069	1,359,440	470,378	2,033,603	404,277	333,190	28,076	873,888	91,290	1,766,251	86.85	267,352	114,531	152,637	—36,391
Panhandle & Santa Fe	772	314,530	73,473	403,437	110,280	147,447	4,924	261,965	15,326	539,626	133.75	—136,189	16,213	—152,513	—239,266
Pennslyvania Co.	1,754	5,273,007	1,477,755	7,472,887	1,208,488	2,358,844	65,302	3,943,294	178,949	7,803,453	104.42	—330,566	287,395	—618,167	—975,973
Pennsylvania Railroad	5,359	19,708,657	7,926,649	30,477,483	3,824,020	9,098,129	230,290	15,487,535	734,048	29,910,328	98.14	567,155	856,501	—289,972	—2,424,099
Peoria & Pekin Union	19	34,582	6,506	104,722	17,111	36,383	890	86,858	6,748	147,991	141.31	—43,269	9,500	—52,769	—20,486
Pere Marquette	2,232	1,940,479	377,042	2,473,433	356,591	515,753	20,753	1,185,459	62,240	2,145,031	86.72	328,403	49,678	278,618	579,554
Phila, Bethlehem & New England	71	.....	.....	115,284	18,693	14,210	208	57,575	1,207	91,893	79.71	23,391	2,550	20,841	2,335
Philadelphia & Reading	1,127	4,584,995	914,036	5,950,981	604,487	1,579,287	51,930	3,485,933	139,879	5,860,470	98.47	90,511	143,228	—52,717	—77,267
Pittsburgh & Lake Erie	224	2,320,438	205,534	2,792,840	414,531	676,184	11,895	902,558	42,700	2,049,360	73.38	743,280	75,500	667,780	531,034
Pittsburgh & Shawmut	103	113,962	4,837	120,546	29,210	41,169	2,321	44,940	3,293	120,933	100.32	—387	974	—1,361	—17,541
Pittsburgh, Shawmut & Northern	204	90,690	7,418	100,502	21,734	46,202	846	41,744	9,429	119,959	119.35	—19,457	1,848	—21,304	—2,002
Pittsburgh & West Virginia	63	99,398	10,650	122,255	52,153	56,073	884	55,885	5,346	178,383	145.91	—56,129	14,285	—70,426	—60,146
Pittsburgh, Cincinnati, Chic. & St. Louis	2,387	4,874,507	1,760,129	7,377,274	903,585	2,315,568	84,279	3,610,476	144,397	7,126,208	96.59	251,066	233,120	17,771	976,344
Port Reading	21	152,393	.....	224,437	33,266	39,567	.....	126,242	1,282	200,358	89.27	24,079	9,000	15,079	78,016
Quincy, Omaha & Kansas Ry.	255	60,565	24,347	84,483	21,332	24,447	168	55,628	940	102,515	121.34	—18,032	3,003	—21,065	—2,464
Richmond, Fredericksburg & Potomac	87	324,458	387,026	760,371	45,521	79,860	3,747	220,732	13,065	365,979	48.13	394,392	15,300	379,087	228,140
Rutland	415	175,580	94,784	327,564	72,491	102,335	7,093	174,931	10,567	367,416	112.17	—39,852	17,579	—57,441	—44,394
St. Joseph & Grand Island	258	183,496	37,376	230,563	51,789	13,137	2,070	153,202	10,988	233,362	101.21	—2,800	8,811	—11,611	—31,718
St. Louis, Brownsville & Mexico	548	292,252	87,109	400,709	74,382	73,314	8,433	121,709	18,701	296,539	74.00	104,170	10,000	94,169	—7,827
St. Louis, Merchants Bridge Terminal	9	.....	734	255,875	43,798	67,892	762	190,563	4,838	307,852	120.31	—51,977	8,000	—59,977	30,709
St. Louis-San Francisco	4,761	3,911,546	1,629,946	5,803,741	1,117,974	1,376,724	38,119	2,556,123	180,735	5,237,404	90.24	566,336	219,517	343,133	—146,631
St. Louis, San Francisco & Texas	134	66,202	23,628	99,464	28,360	16,885	753	74,706	4,420	123,620	124.28	—24,155	537	—24,692	—76,980
St. Louis Southwestern	968	798,417	170,383	999,277	217,726	209,178	14,627	325,932	34,101	818,287	81.88	180,990	37,140	143,239	—121,331
St. Louis Transfer R. R.	6	.....	.....	99,623	8,805	21,096	253	46,375	2,222	78,752	7.905	20,871	100	20,771	15,662
San Antonio & Aransas Pass	732	242,118	86,918	349,573	97,617	102,782	6,968	191,333	21,846	419,806	120.09	—70,224	15,000	—85,224	—142,456
Seaboard	3,563	2,150,905	907,875	3,340,298	505,323	718,983	56,803	1,613,616	103,067	3,017,388	90.33	322,910	135,000	187,789	—97,560
South Buffalo Ry. Co.	35	54,353	.....	167,743	12,894	21,372	282	77,746	1,758	114,052	67.99	53,691	2,800	50,891	59,091
Southern	6,982	6,263,309	3,035,552	10,126,429	1,510,355	2,423,643	114,365	4,512,085	244,886	8,872,759	87.61	1,253,669	319,787	926,481	—264,818
Southern in Mississippi	278	75,290	57,509	145,357	34,164	32,332	1,977	81,315	3,768	143,757	98.89	1,600	9,000	—74,000	—27,295
Southern Pacific	7,049	8,952,314	3,151,299	12,923,802	2,216,555	2,313,900	106,463	5,043,874	292,481	10,185,187	78.80	2,738,614	614,015	2,121,571	—22,632
Spokane International Ry. Co.	156	60,816	14,931	77,707	11,539	6,909	1,258	27,299	4,740	51,579	66.37	26,128	4,012	22,116	4,755
Spokane, Portland & Seattle	554	374,262	122,667	553,084	145,832	101,749	7,429	227,470	19,906	504,148	91.15	48,935	59,200	—10,320	355,772
Staten Island Rapid Transit Co.	23	91,965	59,581	184,507	19,756	21,854	1,036	95,781	8,843	147,270	79.81	37,237	14,000	23,232	70,620
Tennessee Central	293	180,938	46,299	243,038	73,187	71,835	1,108	99,992	7,122	253,245	104.19	—10,207	5,135	—15,440	—3,543
Terminal R. R. Ass'n of St. Louis	16	.....	3,911	300,711	83,170	95,714	987	151,598	5,909	340,717	113.30	—40,007	28,250	68,257	—70,689
Texarkana & Ft. Smith	81	73,587	15,933	98,108	14,916	38,157	373	37,311	3,477	94,171	95.98	9,337	6,458	—2,521	—33,784
Texas & New Orleans	469	376,329	163,506	580,960	136,709	183,490	5,946	235,493	15,062	592,292	101.95	—11,333	21,086	—34,436	—165,734
Texas & Pacific	1,946	1,983,784	671,493	2,731,259	446,831	607,454	27,896	1,409,154	67,715	2,579,770	94.45	151,489	82,540	68,849	—287,393
Toledo & Ohio Central	435	502,415	68,759	600,982	146,105	242,866	5,713	303,152	15,820	715,763	119.09	—114,782	32,293	—147,074	10,321
Toledo, Peoria & Western	247	107,325	47,534	161,733	27,176	34,722	2,167	65,171	5,539	132,589	81.98	29,143	8,500	20,643	46,434
Toledo, St. Louis & Western	454	526,193	26,985	575,623	92,645	124,848	5,125	249,068	12,389	484,072	84.09	91,551	26,000	65,551	137,392
Trinity & Brazos Valley	368	92,772	18,430	116,212	39,793	39,598	1,788	62,176	8,436	151,792	130.62	—35,581	5,715	—41,295	—14,876
Ulster & Delaware	128	27,917	13,279	57,989	13,353	18,451	1,103	45,494	4,580	83,558	144.09	—25,569	4,600	—30,169	—12,839
Union Pacific	3,614	6,467,468	1,519,450	8,594,474	1,055,639	2,569,051	45,019	2,642,807	221,950	5,720,730	66.56	2,873,745	284,765	2,588,526	1,271,702
Union R. R. of Penn	35	.....	.....	582,956	43,865	139,180	250	315,706	7,748	525,904	90.21	57,052	6,428	50,624	276,658
Utah Railway	48	100,194	216	101,670	16,999	24,750	235	22,766	2,070	66,820	65.72	34,851	4,030	30,820	—31,868
Vicksburg, Shreveport & Pacific	171	170,041	82,844	271,586	50,792	60,515	1,441	115,151	8,004	238,152	87.68	33,434	9,417	24,002	—32,283

Commission and Court News

State Commissions

The North Carolina Corporation Commission has filed with the Interstate Commerce Commission a complaint asking for the readjustment of freight rates in the southeastern territory, on the ground that North Carolina towns are discriminated against. Nearly two hundred different railroad companies are made defendants in the suit.

Personnel of Commissions

Harold M. McClure, member of the Pennsylvania State Public Service Commission, died at his home in Lewisburg, Pa., on March 1, at the age of 59.

Clyde B. Aitchison has been elected chairman of the Interstate Commerce Commission in accordance with the custom of that body of rotating its members in the chairmanship in the order of seniority.

C. B. Aitchison

Mr. Aitchison was appointed a member of the commission by President Wilson on September 29, 1917, for a term ending in 1921 as one of the two additional commissioners authorized by the law of August 9, 1917, to increase the membership from seven to nine. Mr. Aitchison was born February 22, 1875, at Clinton, Ia. He practiced law at Council Bluffs, Ia., from 1896 to 1903 and at Portland, Ore., from 1903 to 1907. He was a clerk of the State Tax Commission of Oregon from June, 1905, to July 1, 1906, and was one of the joint authors of the Oregon Railroad Commission law, adopted February 18, 1907. He was appointed a member of the Railroad Commission of Oregon at that time for a short term, was elected a member in June, 1908, was elected chairman in January, 1911, and re-elected on November 5, 1912. In 1916 he resigned from the Oregon commission to become solicitor for the valuation committee of the National Association of Railway Commissioners, and in that office he maintained an office in Washington and took an active part in representing the interests of the state commissions in connection with the valuation of railroads being made by the Interstate Commerce Commission.

Court News

Injury to Passenger—Lurching of Train

The Circuit Court of Appeals, Fourth Circuit, holds that the fact that a passenger on a fast train fell from her chair in the dressing room of a sleeping car from the mere movement of the car does not make out a prima facie case of negligence or of unskillful and careless handling of the train. The mere characterization by the passenger of the movement as a "terrific" or "violent" lurch adds nothing from which negligence can be legitimately inferred. After reviewing the cases on the subject, which contain no authority supporting the plaintiff's contention, the court said that "it was simply one of those unfortunate accidents which sometimes happen for which the law holds no one responsible. In our opinion a verdict should have been directed for the defendant, as was done in the almost identical case of Azaune v. Illinois Central, 151 Fed. 900." Judgment for the plaintiff was reversed.—Norfolk & Western v. Birchett, 252 Fed. 512. Decided July 15, 1918.

Telegraph Lines on Right of Way

The Circuit Court of Appeals, Sixth Circuit, holds that where the Western Union Telegraph Company, after terminating the arrangement under which it maintained lines on the Louisville & Nashville's right of way, was denied the right of condemnation in Alabama, preliminary injunction against the railroad's interference with telegraph lines would not be granted because the government has assumed control of the railroads. It appeared that the Secretary of War had requested that nothing should be done to interfere with the operation of the telegraph system until he approves, and the railroad company had promised full observance of this request.—L. & N. v. Western Union, 252 Fed. 29. Decided June 4, 1918.

Safety Appliance Act—Grabirons

The Circuit Court of Appeals, Second Circuit, holds that section 4 of the federal Safety Appliance Act was not violated by using a car having a grabiron at each side at one corner for use while operating the pin-lifting lever, and grabirons on each end of the car on the side opposite to the pin-lifting lever. A railroad's failure to warn either an experienced brakeman or a green man that some cars of an older style had grabirons on only two corners, while others were equipped on all four corners, was held not negligence, as such warning would have added nothing to their observation, and as the railroad might assume either that they would not act without looking or had already learned that they could not rely on a safe support.—Boehmer v. Pennsylvania, 252 Fed. 553. Decided May 10, 1918.

United States Supreme Court

Employers' Liability Act

A trackman on the New York Central was struck and killed by an engine attached to a passenger train moving along the main track, the man being engaged in shoveling snow between the track and a platform in Camden, N. Y. At this point the company's tracks are used for the purpose of transporting both interstate and intrastate cars and both interstate and intrastate commerce. On appeal from an award of compensaion under the New York Workmen's Compensation Law the Supreme Court of the United States holds that when killed the deceased was employed in interstate commerce, and judgment affirming the award was reversed. N. Y. C. vs. Porter. Decided March 3, 1919.

Moving Lumber to Mill; When Interstate

In an appeal in a freight tariff case the question arose whether shipments of rough lumber from the forest to the milling point, followed by the forwarding of the finished product to points outside of the state, constituted interstate commerce. The Supreme Court of the United States holds that, upon the facts shown, the movement of the rough lumber from the woods to the milling point was intrastate, and not interstate, commerce. It was not merely that there was no continuous movement from the forest to the points without the state, but that when the rough material left the woods it was not intended that it should be transported out of the state, or elsewhere beyond the mill, until it had been subjected to a manufacturing process that materially changed its character, utility, and value. The raw material came to rest at the mill, and after the product was manufactured it remained stored there for an indefinite period—manufacture and storage occupying five months on the average—for the purpose of finding a market. Where it would eventually be sold no one knew. And the fact that previous experience indicated that 95 per cent of it must be marketed outside of the state, so that this entered into the purpose of he parties when shipping the rough material to the mill, did not alter the character of the movement. Hasty vs. St. Louis Southwestern and St. Louis, Iron Mountain & Southern. Decided March 3, 1919.

Foreign Railway News

The reports of an Australian embargo on all imports not originating in Great Britain have proved untrue. The order which was at the base of the report, referred merely to dyestuffs and not to merchandise in general.

Exports from the port of New York in January, 1919, according to figures compiled by the National City Bank, included steam locomotives to the value of $751,865, car wheels to the value of $112,651 and steel rails valued at $1,456,012.

A French commission which was appointed last September to study the subject of the Channel tunnel has begun its meetings to frame definite plans for a Franco-British agreement. Albert Claveille, French Minister of Public Works, presided.

Germany has completed the delivery to the Allies of 5,000 locomotives and 150,000 cars as provided for in the armistice, according to Associated Press despatches quoting from the Tages Zeitung. The value of the rolling stock, it is said, is 3,000,000,000 marks. The Prussian railways furnished three-fourths of the locomotives and cars.

The British Labor Difficulties

The negotiations between the Board of Trade and the Railway Executive Committee on the one hand and the National Union of Railwaymen and the associated Society of Locomotive Engineers and Firemen on the other are continuing in London, but as yet without definite results.

Press despatches from London on March 15 referred to a statement by J. H. Thomas, general secretary of the National Union of Railway Men, to the effect that a serious situation had arisen in the negotiations. Mr. Thomas said, however, he was still working to reach a settlement. He also announced that so-called triple alliance representatives were to meet Friday for final decision as to co-operation of miners, transport workers and railway men.

Personnel of Boards on Siberian Railroads

Complete lists of the members of the Inter-Allied Committee and the Technical and Military Boards, which have undertaken the rehabilitation of the Siberian Railway, were received by cable Wednesday by the state department. The American members are Charles H. Smith, on the Inter-Allied Committee; John F. Stevens, president of the Technical Commission, and Colonel Hugh J. Gallagher, on the Military Board. The work will be mainly in charge of Mr. Stevens.

Following is the complete personnel of the committees:

Inter-Allied Committee, to supervise the railway system: Oustrougoff, Russia (chairman); Charles H. Smith, United States; Liou Tsin Jen, China; G. Bourgeois, acting for De Martel, France; Sir Charles Eliot, Great Britain; Consul General Gasco, Italy, and Matsudaira, Japan.

Technical board in charge of the technical and economic management of the railways: John F. Stevens, United States (president); Dr. Hama Tien Yeu, China; Colonel Leverve, France; Colonel Jack, Great Britain; Major Garibaldi, Italy; H. Nabso, Japan, and Danielevsky, Russia.

Military board, to co-ordinate transportation matters concerning military forces of the United States, the Allies and Russia: Lieutenant Kia Tsien Chich, China; Colonel Tessier, France; Colonel Jack, Great Britain; Captain Schonrolli, Italy; General Takeuchi, Japan; Major Vladimiroff, Russia, and Colonel Hugh J. Gallagher, United States.

Differ on China's Railways

Japanese official disapproval of the contemplated internationalization of the Chinese railways, which has been recommended by other allied legations and the Chinese Government, is responsible for the development of a new plan aiming at the isolation of the Japanese railway interests in China according to a copyright despatch to the New York Times.

It is expected that the Shantung Railway, together with the German interest in the Tientsin-Pukow line, will be considered as indemnity and awarded either to Great Britain or France. Such an award would undoubtedly offset Japanese projects in that province.

The American Siems-Carey Company's possession of rights for the extension of the Peking-Suiyuan Railway, which antedates the Japanese contract, will be insisted upon, says the despatch, America will also insist, when further lines are needed in Manchuria, that the Kuhn, Loeb & Co. contract of 1909 shall have priority. Such a program would confine Japan to the Liaotung Peninsula.

Besides America, Britain, it is said, will decline to recognize the treaties extorted from China under the 21 demands of 1915. Consequently, if Japan does not yield the South Manchurian Railway to the consolidation scheme, China will be put in a position to redeem this line in 1933 according to the original agreement.

American Machinery in Australia

The Far Eastern Division of the Bureau of Foreign and Domestic Commerce has issued Circular No. 13 on American machinery in Australia. The report is of particular interest to readers of this paper because of the fact that as brought out in Frank Rhea's report on markets for American railway materials in Australia, the railroad shops represent an important part of the market for American machine tools.

Australia, the circular says, is rapidly becoming a manufacturing country, and the demand for certain American machinery and machine tools is increasing. As a majority of the engineering establishments are also jobbing shops, the engineers in charge are averse to buying from catalogues, but desire actual demonstrations, especially of new machines, and the majority of sales are accordingly made after a sample machine has been received by the agent or importer. A substantial additional discount on introductory orders should be allowed, particularly in highly specialized lines, as otherwise there is not sufficient incentive to warrant the importer taking the risk of the machine not being a success. Types of American machines, which have subsequently enjoyed exceptional sales, have been kept off the Australian market for years because the manufacturers did not put a sample machine into the hands of a good agent and were finally introduced by the importer who took a chance on their success.

Exclusive Agency Most Acceptable

The exclusive agency is accepted as the most satisfactory method of selling machinery and accessories in Australia. Some of the established agencies have a certain circle of customers, but progressive agencies make themselves of general service to all customers. Moreover, in a country like Australia, where vast distances must be traveled in seeking orders and where modern machinery is just being introduced, it is only fair to the agent who has stocked a machine, which may sometimes prove unsalable, that he be protected by an exclusive contract. If proper care is taken in the selection of a progressive house there is little fear that such an arrangement will be used to stifle competition, such firms generally being as anxious to develop business as the manufacturer.

Method of Financing Orders

Since the war, Australian importers have arranged for cash payments against documents in New York, and there is little probability of an early return to the old method of sight drafts with documents.

The price list in almost universal use in Australia is made on a small loose sheet punched with three ¼-in. holes at 3-in. centers. The advantage of conforming to such styles of price lists and insuring the maintenance of complete files of prices is apparent. This same suggestion holds good with reference to delivery information sheets and sheets showing machines in stock.

American War Deliveries

The Australian import agent seems to have legitimate fault to find with the American manufacturers' optimism in making delivery promises. It is, of course, open to question whether under the abnormal war conditions any industry can function with the same precision as in peace times, and now that peace is at hand, American manufacturers will be quick

to convince Australian importers that they are as ready and willing to make as satisfactory deliveries as other countries. All the Australian agent seems to request is that orders be delivered in the same rotation as received, any other treatment is not only unfair but a source of embarrassment and expense to the importer who has given his customer a specified date of delivery. Perhaps the importers would not complain if they were quoted definite dates of delivery even three times as long as those given, as they would then know what to expect and could explain to their customers, but a short-sighted policy of accepting all orders at delivery dates impossible of execution is to be avoided.

Information and Instructions Wanted

Foundation plans, instructions for setting up, and information regarding the working of machines are all greatly desired. Such information is usually the sole guide of employees who work the machines, and in many cases newly introduced types of machines can be satisfactorily set up in no other way than by following printed instructions. In one instance a fairly intricate automatic gear cutting machine was ordered and instruction specifically requested, but no attention was paid to the request, and when five more of the machines were ordered the same thing occurred, so that the matter could not be attributed to oversight.

Advertising and Catalogues

The Australian importer is a close reader of the leading American machinery trade journals and information regarding new types of machines is often requested on the strength of these advertisements. Naturally the importer who writes for a particular machine is interested in other types and a sale of some other machine might be effected at once if other catalogues were sent, whereas the order for a similar machine is placed with a competitor of the manufacturer because of this lack of business foresight. This situation is better appreciated when it is realized that under present conditions it requires 10 weeks for a letter to reach Australia and a reply be received. For this reason it is sometimes advisable in case of unstable price conditions to state that prices will hold until a definite date so that the Australian merchant will be able to cable his order in case the letter is delayed.

Practically all machinery is subject to customs tariff in Australia and must undergo inspection, and for this reason it is preferable to leave one board on the top of the case not hoop ironed and nailed, but simply screwed down. This board should be located so as to allow a good view of the machine. The loading and warehousing facilities in Australia are not the best and few cranes are employed, so that strong packing is desirable.

Lathes in Demand

Lathes are the most important essential in the machine shops which are springing up in Australia. As the majority of the work of these shops is jobbing, the machine tools should be universal. Gap lathes, for instance, permit one machine to cover a large range of work and are very popular in Australia. One American machine of this universal type has enjoyed a very large sale. Most of the American gap lathes before the introduction of this one were cheap, and light tools are not in demand. Another popular lathe of English manufacture has very large bearings and a rugged headstock which appeals strongly to the Australian market and is in more universal favor in large mining shops than any other tool.

Planers, Punches, Shears and Rolls Too High Priced

The price of American planers as compared with that of English makes is disproportionately high. Though the American planers are very high grade with a number of automatic and convenient feeds, these conveniences have made the price too high for the Australian market, and at present there are not half a dozen of these machines in use in that country. A moderate-priced simple planer could be introduced to advantage. This is equally true of punches, shears, rolls, and other tools used in shipbuilding and structural work, our price of which is out of all proportion to the prices of British makes.

American Imports Increased

The following statistics show the increase by countries in imports of machine tools since the beginning of the war:

Imported from	1914	1916-17
United Kingdom	$265,039	$424,846
United States	226,307	407,618
Germany	9,081	.....
Sweden	6,964	1,883
Belgium	4,993	.....
New Zealand	1,153	5,767
Canada	3,236	4,803
All other countries	346	8,370
Total	$517,119	$853,287

The statistics given with the circular also give figures as to imports of locomotives as follows:

1912	$2,280,306
1913	2,070,185
1914	1,620,228
1915-16	534,609
1916-17	381,976

Of the total of $381,976 imported in 1916-17, $315,018 worth came from the United Kingdom, $64,608 from the United States, and $2,351 from other countries.

Of the total of all kinds of machinery amounting to $15,317,304 in 1916-17, 50 per cent came from the United States, 36 per cent from the United Kingdom, 8 per cent from Canada, and 6 per cent from other countries.

Promising Outlook for American Trade

The United States is, therefore, the report concludes, the leader in the machinery market of Australia, according to latest available statistics. Whether this leadership is maintained will of course depend upon a great many considerations, not the least important of which are closely related to the suggestions made above. The Australian machinery merchant is fully alive to the advantages and good points of American machinery, just as he appreciates most keenly the weakness in our export methods, the brunt of which eventually must be borne by him. The closest attention should be paid to his wishes if we are to encounter a full measure of success.

Ministry of Ways and Communications Proposed in England

The British Cabinet on February 27 introduced in Parliament, as briefly noted in this column in the issue of March 7, page 561, a bill providing for the establishment of a Ministry of Ways and Communications, to have entire charge of all means of transportation in the United Kingdom and providing for an extension of the government control of railways for an additional two years during which time their ultimate status may be considered. In introducing the bill in the House of Commons, Mr. Shortt explained the reasons for the bill. He contended that the day for unfettered railway competition had gone, and that the introduction of mechanical traction had made the highways essentially a national question. These were among the considerations which had weighed with the government in deciding to set up a ministry to co-ordinate the whole of these important means of transport. He made it clear at the start that the ministry would maintain for the two years during which the government guaranteed the receipts of the railways the control which they had during the war, and would be given power during that period to consider the whole question and to make such changes as and when it thought desirable. "Does that mean," he was asked by Sir Edward Carson, "that they can nationalize the railways?" "Not without the consent of this House," Mr. Shortt replied.

One of the important provisions of the bill gives the Ministry control over the supply of electricity.

Mr. Shortt admitted that there might be a considerable difference of opinion on this proposal. He suggested, however, that as transport was the greatest customer for electricity, and as it depended entirely for its successful management upon the development of the industries of the country, the House would recognize how important it was that the Ministry should have control of electricity.

Sir Eric Geddes, Minister without portfolio, speaking in favor

of the bill on March 17, said that with the exception of the street railways the transportation system of the country financially was in a semi-paralyzed state, and physically ill-equipped to meet the strain of the demands made upon them partly owing to lack of men and capital during the war. The country had to face the fact today that with the railways there would be a loss of over a quarter of a million pounds daily, while the government was pledged to continue its guarantees for two years.

If transportation was not to continue to run at the cost of the taxpayer, there must be a real transportation policy, and the government had come to the conclusion that some measure of unified control was necessary. There must be some body which should be responsible for the transportation policy.

In the present conditions, it would be criminal to permit the old system of competition. The government must have a say in the conditions under which labor worked and with regard to the discipline to be expected in trade unions. The state must step in at once and make possible an economic balance, which was impossible in the present condition of things.

In order to get rid of empty haulage, continued Sir Eric, the government would take over the power to acquire privately owned cars on the railways, which constituted nearly half the cars employed. During the next two years the same organization would be continued that existed during the war, but thereafter there was certain to be some central control—commissions on which the government and labor would be represented. It would also be necessary to have a central control over docks and canals. Nationalization of railways might care for the present conditions—he did not know. He looked upon nationalization as a means to an end, which might have to be adopted finally.

Text of the Bill

The complete text of the bill is given in the London Times of February 28, and some of the important sections of it are as follows:

1. For the purpose of improving the means of, and the facilities for, locomotion and transport, it shall be lawful for his Majesty to appoint a Minister of Ways and Communications. . . .

Powers and Duties

2. (1) It shall be the duty of the Minister to take steps to carry out the purposes aforesaid, and there shall as from such date or dates as his Majesty in Council may by Order determine, be transferred to the Minister all powers and duties of any Government Department in relation to—

(a) railways;
(b) light railways;
(c) tramways;
(d) canals, waterways, and inland navigations;
(e) roads, bridges and ferries, and vehicles and traffic thereon;
(f) harbors, docks and piers;
(g) the supply of electricity;

including any powers and duties of any Government Department in relation to any railway, light railway, tramway, canal, inland navigation, harbor, dock, pier, electricity, or other undertaking concerned with any of the matters aforesaid, and any powers of any Government Department with respect to the appointment of members or the procedure of the Railway and Canal Commission or of any commissioners, conservancy board, or other body having jurisdiction with respect to any such matters as aforesaid:

Power to Control Temporarily Railways, Etc.

3. (1) With a view to affording time for the consideration and formation of the policy to be pursued as to the future position of undertakings to which this section applies, the following provisions shall have effect for a period of two years after the passing of this Act:

(a) Where at the passing of this Act possession has been taken of any railroad undertaking or part thereof in pursuance of section sixteen of the Regulation of the Forces Act, 1871, or otherwise, possession thereof may be retained without any renewal of the warrant granted by the Secretary of State in pursuance of that section upon the same terms as to payment as those heretofore in force, and the Minister may exercise over all such undertakings all such powers as have hitherto been exercised by the Board of Trade under the said Act or with the consent of the owners of the undertakings or otherwise, and such other powers as may be conferred by this section or agreed to by the railway companies concerned:

(b) The Minister may take possession in the name or on behalf of his Majesty of the whole or any part of any other railway undertaking or of any light railway, tramway, canal, inland navigation, harbor, dock or pier undertaking, or of any plant belonging thereto or used thereon, and of the railway wagons of any private owner required for use on any railway of which possession has been taken, and of any barges, tugs, and other craft required for use on any canal of which possession has been taken.

(c) The directors, officers, and servants, of any undertaking of which, or of the plant whereof, possession is retained or taken shall obey the directions of the Minister as to the user thereof and any directions of the Minister—

(i) as to the rates, fares, tolls, dues, and charges to be charged:

(ii) as to the salaries, wages, and remuneration and conditions of employment of persons employed on or in connection with any undertaking of which possession has been taken:

(iii) as to the working or discontinuance of the working of the undertaking or any part thereof including directions as to keeping open or closing of any stations:

(iv) for securing that the permanent way, rolling stock, plant, appliances, or equipment, whether fixed or moving, are satisfactory in type and design:

(v) as to the carrying out of alterations, improvements, and additions which the Minister considers necessary for the public safety or for the more efficient and economic working of the undertaking:

(vi) for securing co-operation between undertakings and for securing the common user of facilities, rolling stock and equipment whether fixed or movable:

(vii) for affording running powers over their system, or any part thereof, to the owners of any other undertaking:

(viii) for securing that manufacturing and repairing facilities, and auxiliary and ancillary services shall be used, and the purchase and distribution of stores shall be conducted, in such manner as may be most conducive to economy and efficiency:

(ix) as to the preparation and submission to the Minister at such times and in such form and manner as the Minister may require of statistics and other returns, and of accounts at such times and in such form and manner as the Minister, with the consent of the treasury, may, by regulations, prescribe:

(d) For enabling any directions given by the Minister as to alterations, and improvements and additions to be carried into effect the Minister may, by order, authorize the owners of any undertaking to acquire any land and to construct any works, and the order may incorporate the Lands Clauses Acts, subject to such modifications as may be specified in the order, being modifications of those acts made or authorized to be made by the Development and Road Improvement Funds Act, 1909, or any other enactment, and may incorporate or apply any of the provisions of any enactment relating to the construction, maintenance, or working of railways, light railways, tramways, canals, harbors, docks and piers:

(e) Any rates, fares, tolls, dues, and other charges directed by the Minister shall be deemed to be reasonable, and may be charged, notwithstanding any statutory provisions limiting the amount of such charges or increases therein.

(4) Where by reason of the exercise of the powers under this section the value of any undertaking has been depreciated or enhanced, the owners of the undertaking shall, so far as any loss is not provided for by the payments mentioned in paragraph a, be entitled to be recouped or liable to pay the amount by which that value has been so depreciated or enhanced, and if any question arises as to that amount or otherwise with respect to the financial relations between the Minister and any person affected by the exercise by the Minister of any of his powers under this section, the question shall be determined by the Railway and Canal Commission; and without prejudice to any other form of payment or satisfaction, the Treasury on the recommendation of the Minister may, as or as part of the consideration for exercising any powers of control under this section, guarantee the payment of any dividends on any stock or other securities issued by the owners of an undertaking up to such amount as may be agreed, or the payment of any working expenses of the undertaking, and any sums required to fulfill any such guarantee shall be paid out of moneys provided by Parliament.

4. (1) His Majesty in Council may at any time after the passing of this Act by order authorize the Minister—

(a) to purchase by agreement or compulsorily and work the whole or any part of any railway, light railway, tramway, canal, waterway or inland navigation, harbor or dock undertaking the acquisition of which is, in the opinion of the Minister, expedient for improving facilities for locomotion and transport:

(b) to enter into and carry into effect agreements with the owners of any such undertaking for the placing of the undertaking or any part thereof under the control of the Minister to such extent and subject to such financial arrangements as with the consent of the Treasury may be agreed:

(c) himself to establish any such undertaking and to work and maintain the same and for that purpose to acquire any lands either by agreement or compulsorily, and the order may incorporate the provisions of the Lands Clauses Acts, subject to such modifications as may be specified in the order, being modifications of those Acts made or authorized to be made by the Development and Road Improvements Funds Act, 1919, or any other enactment, and the Order may incorporate or apply any of the provisions of any enactment relating to the construction, maintenance, or working of railways, light railways, tramways, canals, harbors, docks and piers:

(d) to lease the whole or any part of any undertaking so acquired or established:

(e) to purchase or take on hire and lease railway wagons belonging to any private owners:

(f) to establish, maintain, and work transport services by land or water:

and it shall be lawful for the owners of any undertaking to which any such Order applies to enter into and carry into effect

any agreement authorized by or required for the purposes of the Order.

(2) An order in Council under this section authorizing the purchase of any undertaking or part thereof may provide for vesting the undertaking or part in the Minister either subject to any mortgages, debentures, debenture stock, or other charges and obligations affecting the undertaking or discharged therefrom, or from any of them, and for preserving the rights and security of the persons entitled to such charges, or for giving them a substituted charge on the consideration paid for the undertaking.

(3) The consideration for the undertaking or property so acquired shall, in default of agreement, be determined by a court of arbitration constituted in accordance with the provisions of the Order authorizing the acquisition.

(4) Any capital sum payable under an agreement or award may be discharged in whole or in part, if the Treasury so direct, by the issue of securities, and the amount of such securities equivalent to such capital sum shall, in default of agreement, be determined by a court of arbitration constituted as aforesaid.

For that purpose the Treasury may create and issue securities the interest on which shall be charged on the revenues of the undertakings transferred after the payment thereout of working expenses, and if and so far as such revenues are insufficient on the Consolidation Fund of the United Kingdom, or the growing produce thereof, and which shall bear interest at such rate and shall be subject to such conditions and regulations as to repayment, redemption, or otherwise as the Treasury may direct or prescribe, and the regulations may apply with the necessary modifications and of the enactment relating to Local Loans Stock.

(7) Before an Order to Council is made under this section, a draft thereof shall be laid before each House of Parliament for a period of not less than 30 days during which that House is sitting, and if either of those Houses before the expiration of those 30 days presents an address to his Majesty against the draft, or any part thereof, no further proceedings shall be taken thereon without prejudice to the making of new draft order.

5. (1) The Minister may, subject to the approval of the Treasury, make advances out of the moneys provided by Parliament to any authority, company, or person, either by way of grant or by way of loan, or partly in one way and partly in another, and upon such terms and conditions as he thinks fit for any of the following purposes:—

(a) The construction, improvement, or maintenance of railways, light railways, or tramways:

and the power of the Treasury on the recommendation of the Development Commissioners to make advances for any of the purposes aforesaid shall cease and determine.

POWER TO REQUIRE STATISTICS AND RETURNS

6. It shall be the duty of the owners of any railway, light railway, tramway, canal, inland navigation, dock, harbor, pier or electricity undertaking, and the authority or person liable to maintain any road or bridge, to furnish to the Minister at such times and in such manner and form as he may require for the purposes of his powers and duties under the Act.

STAFF AND REMUNERATION.

8.—(1) The Minister may appoint such secretaries, officers, and servants of the Ministry as the Minister may, subject to the consent of the Treasury as to number, determine.

(2) There shall be paid out of moneys provided by Parliament to the Minister an annual salary not exceeding five thousand pounds, and to each of the Parliamentary secretaries of the Ministry an annual salary not exceeding fifteen hundred pounds, and to the other secretaries, officers, and servants of the Ministry such salaries or remuneration as the Treasury may from time to time determine.

10.—(1) The office of Minister of Ways and Communications, or of the secretary in the Ministry of Ways and Communications, shall not render the holder thereof incapable of being elected to or sitting or voting as a member of the Commons House of Parliament, but not more than two such secretaries shall sit as members of that house at the same time.

(2) The person who is first appointed to be Minister shall not by reason of such appointment, if a member of the Common House of Parliament, vacate his seat as such member.

Equipment and Supplies

The committee representing the steel interests conferred with the Industrial Board of the Department of Commerce, Washington, on Wednesday, in an effort to reach an agreement on steel prices. No definite agreement was reached at the first day's conference, but it was hoped it would be possible to announce a schedule of prices on Thursday.

Locomotive Deliveries to March 8

The following new locomotives were shipped during the week ending March 8:

Works	Road	No.	Type
American..	Maine Central	6	USRA Mikado.
	Erie R. R.	2	USRA St. Fe.
	Penn. L. W.	3	Santa Fe.
	Central R. R. of Ga.	2	Mallet.
	Chicago & North Western	2	USRA 6W. Sw.
	Chicago & North Western	1	Mikado.
	Ches. & Ohio	1	10-W. Sw.
	A. C. L.	1	USRA Pacific.
	Texas & Pacific	2	USRA 6W. Sw.
		20	
Baldwin...	Union Pacific	3	Pacific.
	C. B. & Q.	2	Mikado.
	Lehigh Valley	1	Pacific.
	A. T. & St. Fe.	2	Mikado.
	Ill. Cent.	1	Mikado.
	Great Northern	2	8-w. Sw.
	C. C. & O.	2	Mikado.
	P. R. R.	1	Mikado.
	P. & R.	1	Consol.
	Total	35	

Freight Cars

THE UNITED STATES GOVERNMENT is inquiring for one flat car for the Navy Department.

MAYER & LAGE, New York, are inquiring for four to eight 20-ton, type E. S. T. platform cars for France.

THE DESCHANEL INTERNATIONAL CORPORATION, New York, is inquiring for 10-ton and 20-ton standard French type box cars for France.

Iron and Steel

Rail for Sale by War Department

The director general of military railways has 45,000 tons of steel rail, both Bessemer and open hearth, with the necessary angle bars, bolts, spikes, tie plates, rail braces, frogs, switches and crossings for sale. The rail is of the A. R. A. Type "B" 80 lb. section. The specification for the Bessemer rail is not given, but that for the open hearth is substantially the same as the A. R. E. A. specification as given in the 1915 edition of the manual. About one-third of this material is stored at New York (Kearney, N. J.), and the remainder at Norfolk, Va. Regional directors are asking the federal managers to see if any of the roads under their jurisdiction can use any of this material.

Miscellaneous

COMMERCE REPORTS in a recent issue contained the following trade opportunity:

28712.—An American company about to open up an industry in Honduras proposes to reconstruct the present wharf of reinforced concrete, to reconstruct and maintain the roadbed of a railway, to build a new railway line, to erect one steel bridge, and to open up new lands. It desires to purchase machinery and supplies for this work. Quotations should be given f. o. b. New Orleans. References.

Further details may be obtained from the district or cooperative offices of the Bureau of Foreign and Domestic Commerce or from the head office in Washington.

Supply Trade News

The Chicago Pneumatic Tool Company, Chicago, has opened offices and warehouses at Tulsa, Okla.

Clyde P. Benning, service manager of Mudge & Company, Chicago, has been appointed assistant general manager with headquarters at Chicago, in which position he will assist the railroad companies in developing motor car organizations. Mr. Benning was born at Atchison, Kan., on September 20, 1888, and received his education in the public schools of that city. His business career dates back to 1903, at which time he entered the employ of the Missouri Pacific, serving in several clerical positions with that company until April, 1905, when he entered the shops of that road as a machinist apprentice, later being promoted to machinist. In 1910 he resigned from the Missouri Pacific in order to accept a position with the Tool & Railway Specialty Company at Atchison, Kan., with which concern he remained until December 15, 1914, leaving at that time to enter the employment of Mudge & Company as shop inspector. Previous to his recent appointment as assistant general manager, Mr. Benning was service engineer and in 1916 western manager, with headquarters at San Francisco, Cal., and during the latter part of 1918 held the position as service manager, with headquarters at Chicago, until his appointment as stated above.

C. P. Benning

Jean K. Vanatta, mechanical engineer of Mudge & Company at Chicago, has been appointed service manager in which capacity he will have charge of the company's service engineers, who are working with the motor car men on the various railroads throughout the country, as well as the developing of the service idea. Mr. Vanatta was born at Colorado Springs, Colo., on June 2, 1888, and received his education in the Colorado Springs High School and the University of California, where he graduated from the College of Engineering in 1910. He began his business career immediately after his graduation as special apprentice of the Washington Air Brake & Machine Company. During the year 1914 he was supervisor of the engineering and development work of the Great Western Mining and Milling Company at Hayman, Colo., and the following year he was in the employ of the Bell Telephone Company on outside construction work. Mr. Vanatta joined the forces of Mudge & Company as shop and material inspector in September, 1916, which position he held until his present promotion to the office of service manager.

J. K. Vanatta

Nelson B. Gadch has been appointed district manager of sales for the Chicago Pneumatic Tool Company, with headquarters in the Metropolitan Bank building, Minneapolis, Minn.

Fred H. Waldron, Minneapolis representative of the Chicago Pneumatic Tool Company, has been appointed manager of the pneumatic tool sales division, to succeed **J. D. Osgood,** who has resigned.

John W. Foyle, vice-president of the Gustin-Bacon Manufacturing Company, Kansas City, Mo., who has been a major in the United States Army, has been released from service and returned to his duties with his company on March 1.

J. I. Edwards has been appointed manager of the Rock Drill Sales division of the Chicago Pneumatic Tool Company, succeeding **E. Eklund,** who has been appointed special foreign representative, and who will leave shortly for Europe in the interest of that company.

J. A. Farris, who has been connected with the **Whiting Foundry and Equipment Company,** at Chicago, as crane engineer in the engineering department for the past ten years, has entered the employment of Scully-Jones & Co., at Chicago, as special sales engineer on cranes.

A. N. Willsie has resigned from the Chicago, Burlington & Quincy, with which company he has been connected for the past 29 years, to accept the position of district engineer of the Locomotive Stoker Company, with headquarters at Chicago. Mr. Willsie was born in Galesburg, Ill., where he received his primary school education. He entered the service of the Burlington on April 20, 1880, as an errand boy in the master mechanic's office, and later filled the position of chief clerk to the master mechanic in this same office. In 1890 he became a locomotive fireman, and then was engineman for six years when he became road foreman of engines, from which position he was promoted to division master mechanic at Brookfield, Mo., Aurora, Ill., and Omaha, Neb. Mr. Willsie left the mechanical department to take the position of division superintendent in the operating department, and for two years filled this position at St. Joseph, Mo., and three years at Hannibal, Mo. Since June, 1912, Mr. Willsie has been permanent chairman of the fuel economy committee and superintendent of fuel economy of the Burlington, with headquarters in Chicago, reporting direct to the general superintendent of motive power, and vice-president in charge of operation.

A. N. Willsie

Chicago Pneumatic Tool Company

The Chicago Pneumatic Tool Company, Chicago, in its annual report for the year ending December 31, 1918, shows net earnings of $535,833.56, which is equal to 8.32 per cent on the stock. The report for the year previous shows net earnings of $1,169,390, or 18.3 per cent on the stock.

In discussing the financial status of the company, H. A. Jackson, the president, said in part:

"The great volume of business of an imperative nature which had accumulated on the company's books because of the country's war activities, produced a condition disclosing certain deficiencies which the directors took steps to correct. An entire reorganization was effected and was practically completed in June, 1918.

"In the meantime, the Emergency Fleet Corporation called upon the company for increased production. An inspection of the plant by the new management revealed that in order to obtain the additional output required, the equipment must be scientifically balanced, further facilities provided, and improved shop management applied. Considerable quantities of material, found to be obsolete, were disposed of. Moreover, an investigation of the company's accounting methods made by the new management indicated the desirability of certain substantial changes, especially in the basis of writing off depreciation.

"An immediate and general revision of the old methods of production was undertaken, resulting in a greatly increased volume of output, which more nearly met the requirements of the industry concerned in the government's war program. The company's cost and accounting systems were revised. There has been charged off on account of depreciation in inventories, machinery, etc., together with bad debts and shrinkages due to discrepancies in cost accounting and other items, an amount of $872,413.16.

"Though a heavily increased production has been marketed at prevailing prices, the resultant earnings have been affected by the substantial increase in the cost of labor and materials.

"On account of depreciations necessary because of the transition from a war to a peace basis, the British and Canadian subsidiary companies are not showing a large return for the year. The British subsidiary was heavily involved in Russia, and the unfortunate developments in that country have made necessary the setting aside of relatively large reserves on the books of that company.

"The balance sheet of the company is as follows:

ASSETS

Capital Assets:	
Lands, buildings, machinery, equipment, etc., plus additions during the year less reserve for depreciation	$7,662,177
Investment in foreign subsidiary company	58,309
Special funds for redemption of 6 per cent bonds	31,161
Current Assets:	
Inventories, accounts and notes receivable, etc., cash	9,073,885
Deferred Charges:	
Discount on bonds, interest, insurance, etc., prepaid	393,306

LIABILITIES

Capital Liabilities:	
Capital stock	$6,448,800
First mortgage bonds	3,250,000
Current Liabilities:	
Notes payable, accounts payable, including payrolls, accrued liabilities, etc.	2,329,771
Reserves:	
For contingencies and for first mortgage bond sinking fund	408,162
Appropriated Surplus:	
For investment in additions to property and working capital	2,000,000
Unappropriated surplus	2,782,107

Trade Publications

BLAW-KNOX PRODUCTS.—The Blaw-Knox Company, Pittsburgh, Pa., has issued a diminutive booklet on its products, 2½ in. by 3¼ in. in size. There are eight pages printed in three colors illustrating and describing the fabricated steel work, plate work, transmission towers, furnace equipment, Blaw buckets, Blaw forms and Blaw mixers produced by this company.

THE BEST YARD MASTER is the man who knows human nature and who can do the things he would have his men do just a little better than they can, and do it just a little quicker than they can; also he is considerate of his men. Kind when kindness is needed, severe when it is necessary to be severe, and absolutely a tyrant when nothing else will bring results. The best yard master is one that instead of telling his men how to do switching or to handle certain trains in and out of his yard, will ask them how they are going to do it, prefacing his request for knowledge with some pleasant remark, evidencing good will. If he is a good yard master he will listen to what his men propose to do, especially if it is a difficult task, and will carefully weigh what they suggest. If he knows no better way he will let them do it their way, though it may differ somewhat from his. By so doing he can feel assured that he has encouraged individuality in his men and will reap the benefit, as it becomes a matter of personal pride with the yardmen to make good their suggestion. Such a yardmaster gains the good will and loyalty of his men.—*H. D. McKee, Benwood, W. Va.*

Financial and Construction

Railway Financial News

CHICAGO, ROCK ISLAND & PACIFIC.—The New York Stock Exchange on March 12 listed this company's $29,422,100 7 per cent preferred stock, $25,108,100 6 per cent preferred stock and $75,000,000 common stock.

ERIE.—J. P. Morgan & Co. have announced a new offering of $15,000,000 three-year 6 per cent notes to refund an equal amount of two-year notes maturing April 1. Holders of the maturing notes will have the privilege of exchanging them for the new notes at 98 and interest, a price which will bring the owners a return of 6¾ per cent. The War Finance Corporation stands ready to take any amount of the notes which are left after the exchange privilege is closed and after the public offering has been concluded. The price to the corporation will also be 98 and the funds will be used to pay off holders of the two-year 5 per cent notes who elect to receive cash. The railroad company agrees to maintain collateral behind the issue with a market value of 125 per cent of the amount of the notes.

GRAND TRUNK.—The directors have decided that, owing to immensely increased expenses, caused by war conditions, the company was unable to earn any dividends on guaranteed or preference stocks for the past year. These dividends have not been paid since the first half of 1917.

ILLINOIS CENTRAL.—Robert S. Lovett has been elected a director to succeed R. W. Goelet.

PENNSYLVANIA.—President Samuel Rea has announced that the directors of the company had authorized him to borrow $22,000,000 from bankers to be used in the payment of overdue federal vouchers for expenditures incurred in governmental operation of the Pennsylvania system, including purchases of fuel, materials and supplies, and expenditures for improvement and betterment work. The funds will be used exclusively in paying these vouchers. Arrangements have been made for immediate payment of the more pressing of these debts. Director General Hines has approved of the foregoing plan and is willing, upon appropriation by Congress of funds available for that purpose, to promptly make payment of the $22,000,000, if then due the companies in the Pennsylvania system on account of compensation.

TEXAS & PACIFIC.—The stockholders have elected a new board of directors consisting of Henry A. Bishop, Harry Bronner, B. D. Caldwell, Kingdon Gould, George G. Haven, Alexander J. Hemphill, C. C. Huitt, A. A. Jackson, Alvin W. Krech, J. H. McClement, N. S. Meldrum, Dunlevy Milbank, S. T. Morgan, Wm. Church Osborn, Finley J. Shepard, John I. Waterbury and Wm. H. Williams.

The election of a new board is the first step in a plan to effect a financial readjustment and release the property from receivership. Although a majority of the new directors have affiliations with the Missouri Pacific, the board is the result of a compromise of all interests. Of the Texas & Pacific's $25,000,000 second mortgage income bonds, the Missouri Pacific owns $23,703,000.

Railway Construction

QUEBEC CENTRAL RAILWAY.—This road has awarded contracts for a car shop with concrete substructure and a brick and steel superstructure to be built at Newington, Que. It will be 75 ft. by 225 ft. and one-story high, cost about $42,000.

POINTS FOR THE YARDMASTER.—If the company will afford a good wardroom for your switchmen, arrange for laborers to give it a good cleaning occasionally; have it provided with a stove, during cold weather, and have a good fire going when the men come to lunch. This requires but a little effort and the majority of the men will appreciate it; furthermore, they will have no occasion to leave work to prepare a fire—*H. D. McKee.*

Railway Officers

Railroad Administration

Central

W. A. Webb, heretofore general manager of the Missouri, Kansas & Texas of Texas, has been appointed a member of Railway Board of Adjustment No. 1, with office at Washington, vice **John G. Walber,** who was recently appointed labor assistant to the director of operation.

Federal and General Managers

George E. Johnson has been appointed assistant to the general manager of the Denver & Rio Grande, the Rio Grande Southern, the Denver Union Terminal, the Pueblo Union Depot and the Salt Lake City Union Depot, with headquarters at Denver, Colo.

Morris S. Hawkins has been appointed federal manager for the Norfolk Southern, the Carolina Railroad and the Kinston Carolina Railroad, with office at Norfolk, Va., to succeed **J. H. Young,** who has been appointed senior assistant director of the division of operation, with office at Washington, D. C.

Charles N. Whitehead, general manager of the Northern lines of the Missouri, Kansas & Texas, who has been appointed federal manager of the Katy system, with headquarters at St. Louis, Mo., was born at Princeton, Ill., in 1876, and received his early education in the public schools of that city. In 1893 he entered the employ of the Missouri, Kansas & Texas as a messenger, after which he was consecutively to 1905 clerk and stenographer in the freight and ticket office, stenographer and clerk to the superintendent, stenographer and clerk to the general freight agent, stenographer and clerk to the general attorney, chief clerk to the superintendent, stenographer and clerk to the general counsel. In 1905 he was appointed assistant secretary, becoming secretary in 1909, and soon after secretary and treasurer of the same road. In April, 1913, he was appointed assistant to the president of the Missouri, Kansas & Texas, and in 1914 was elected vice-president, with headquarters at St. Louis, Mo. When the railroads came under government control, Mr. Whitehead was appointed general manager of the Missouri, Kansas & Texas, Northern Lines, with headquarters at St. Louis, which position he held until his recent appointment as federal manager of the Missouri, Kansas & Texas, the Missouri, Kansas & Texas of Texas (including the Trinity branch and the Beaumont & Great Northern), the Missouri, Oklahoma & Gulf, the Oklahoma Belt and the Wichita Falls & Northwestern.

C. N. Whitehead.

Operating

J. G. Fitzhugh has been appointed superintendent of safety and fire protection of the Gulf, Colorado & Santa Fe and associated lines, with headquarters at Galveston, Texas.

John Connors has been appointed trainmaster of the Racine and Southwestern division of the Chicago, Milwaukee & St. Paul, with headquarters at Beloit, Wis., vice **C. E. Corcoran,** deceased.

George E. Johnson has been appointed assistant to general manager of the Denver & Rio Grande, the Rio Grande Southern, the Denver Union Terminal, the Pueblo Union Depot & Railroad, and the Salt Lake City Union Depot and Railroad, with headquarters at Denver, Colo.

William Elmer, acting superintendent of the Philadelphia division of the Pennsylvania Railroad, Eastern Lines, with office at Harrisburg, Pa., has been appointed superintendent of the same division, and **C. D. Young,** acting superintendent of the Schuylkill division, with office at Reading, has been appointed superintendent of the Schuylkill division.

Traffic

William Warner, assistant general freight and passenger agent of the Los Angeles & Salt Lake, has resigned, effective April 1. Mr. Warner's entire business career has been in the railroad service, beginning in 1900. Before joining the forces of the San Pedro, Los Angeles & Salt Lake, which is now the Los Angeles & Salt Lake, he was with the Chicago, Milwaukee & St. Paul, and later with the Kansas City Southern as contracting agent. He was general agent of the San Pedro, Los Angeles & Salt Lake, with headquarters at Chicago, for several years prior to his appointment as assistant general freight and passenger agent of the same road, with headquarters at Salt Lake City, Utah. Mr. Warner has accepted a position with Lederer & Dickson Company, grain commission merchants, Chicago.

Engineering and Rolling Stock

Lieutenant William H. Hobbs, 332nd Field Artillery, U. S. A., has returned from France and received his discharge from the army. On March 1, he resumed his position as assistant engineer on the Louisiana division of the Missouri Pacific, with headquarters at Monroe, La.

Louis Warren Duffee, whose appointment as chief engineer of the Gulf, Mobile & Northern, with headquarters at Laurel, Miss., has already been announced in these columns, was born in 1884, at Mobile, Ala., and was educated in the Alabama Polytechnic Institute. He began railway work in August, 1904, with the Bay Minette & Ft. Morgan Railroad. The following year he was appointed an assistant division engineer on the Louisville & Nashville, and then after three years of varied engineering work in Alabama and Indian Territory, he entered the service of the Mobile, Jackson & Kansas City, now part of the Gulf, Mobile & Northern, as resident engineer on maintenance and construction. In 1911, he was appointed locating engineer on the same road, which then became the New Orleans, Mobile & Chicago. Mr. Duffee was engaged in conducting new surveys and carrying out some construction work until 1917, excepting about two years, 1912 and 1913, when he was chief engineer of the Meridian & Memphis. In 1917, he was appointed special engineer of the Gulf, Mobile & Northern and had charge of federal valuation work and special engineering projects on that road. On December 1, 1918, he was made acting chief engineer, which position he held until his recent appointment as chief engineer of the same road as above noted.

E. Bruce Ford, whose appointment as assistant engineer in the Northwestern Region with office at Seattle, Wash., was announced in the *Railway Age* of March 7 (page 567), was born at Laceyville, Pa., on August 21, 1881, and received his education in the high school of that place and the State Normal School at Mansfield, Pa., later attending Lafayette College. Mr. Ford began railway work in July, 1902, as a tapeman and rodman on the Delaware, Lackawanna & Western, and one year later he entered the employ of the Pittsburgh, Shawmut & Northern and the Buffalo & Susquehanna as a draftsman. In 1905 he became a draftsman and masonry designer with the Syracuse Railroad Construction Company, at Syracuse, N. Y., and in 1906 was appointed assistant division engineer on the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Middletown, Ohio. The following year he was employed on the Chicago, Milwaukee & Puget Sound

as a resident engineer, and in 1909 he went with the Grand Trunk Pacific as a construction foreman. From 1910 to March 1, 1919, he served consecutively on the Great Northern; as draftsman and assistant engineer, on the Marcus division; assistant engineer at Vancouver, B. C., on terminal developments at that place; and office engineer in the principal assistant engineer's office at Seattle, Wash., which latter position he held prior to his appointment as assistant engineer of the Northwestern Region.

Warren Y. Scott, who has been appointed signal engineer of the Boston & Maine, with office at Boston, Mass., as has already been announced in these columns, was born on September 23, 1877, at South Boston, Mass., and graduated from Hyde Park High School in 1894. From the spring of 1895 to 1896, he worked for the Union Switch & Signal Company, on the New York, New Haven & Hartford, during signal changes, on account of the New Haven changing from left to right hand running. On January 13, 1896, he entered the service of the Boston & Maine as a helper. He subsequently served consecutively as general helper, signalman, maintainer, foreman and general foreman. In April, 1907, he was appointed supervisor of electric signals, and in October, 1911, was appointed general inspector of signals. Since September 1, 1916, he has served as assistant signal engineer until his recent appointment as signal engineer of the same road and subsidiary lines.

W. Y. Scott

E. L. Martin, engineer of maintenance of way of the Missouri, Kansas & Texas, at Parsons, Kan., who has been appointed chief engineer of the Missouri, Kansas & Texas, the Oklahoma Belt and the Missouri, Oklahoma & Gulf, as was announced in the *Railway Age* of March 7 (page 553), graduated from the Agricultural and Mechanical College of Texas in June, 1899, and began his railway career as an axman on location work with the Texas & New Orleans. In September, 1899, he went to the Southern Pacific and served in various capacities in the engineering department until he became assistant engineer. In 1902, he was appointed assistant engineer on the Kansas City Southern, at Pittsburgh, Pa., and left that position in 1905 to become division engineer and assistant engineer on construction for the Gulf, Colorado & Santa Fe, in Texas. In 1912 he was appointed assistant superintendent of the Southern Pacific at Lafayette, La., and the following year was made division engineer on the Missouri, Kansas & Texas, at Denison, Texas. Later he was appointed engineer of the Missouri, Kansas & Texas in charge of the construction of the San Antonio terminals, which position he held until his appointment as engineer of maintenance of way for the same road in April, 1917. As chief engineer of the Missouri, Kansas & Texas, the Wichita Falls & Northwestern and the Missouri, Oklahoma & Gulf, with headquarters at Dallas, Texas, Mr. Martin succeeds **F. G. Jonah,** chief engineer of the Missouri, Kansas & Texas and the Missouri, Oklahoma & Gulf, and **F. Merritt,** chief engineer of the Missouri, Kansas & Texas Railway of Texas and the Wichita Falls & Northwestern, both of whom were assigned to other lines in connection with the regrouping of roads in the Southwestern Region, as mentioned in our issue of March 7, on page 552.

Purchasing

George W. Snyder, who has been appointed general storekeeper of the Pennsylvania Railroad, eastern lines, with headquarters at Philadelphia, Pa., as has already been announced in these columns, was born at Pottsville, Pa., on January 9, 1866, and was educated in the public schools of Pottsville and at Lehigh University. Mr. Snyder began railway work with the Pennsylvania Railroad on November 1, 1884, as rodman on the Renovo division. He was appointed assistant supervisor of the same division on January 1, 1886, and in August, 1890, was promoted to supervisor. On June 10, 1897, he was appointed supervisor on the Northern Central at Baltimore, and three years later was transferred to the Altoona yard. He was promoted to division engineer of the Monongahela division in January, 1901, and in June, 1903, was transferred to the Pittsburgh division. On April 1, 1907, he was appointed principal assistant engineer of the Western Pennsylvania division; in October, 1917, he was made assistant engineer, maintenance of way, in charge of bridges and structures, and served in that position until his recent appointment as general storekeeper of the Pennsylvania Railroad, eastern lines, as above noted.

Corporate

Operating

J. J. Horn, whose appointment as superintendent of the Kenora division of the Canadian Pacific, with headquarters at Kenora, Ont., was announced in the *Railway Age* of February 28 (page 522), was born at Carleton Junction, Ont., on November 26, 1873, and began railway work on January 12, 1892, with the Canadian Pacific in the capacity of agent and operator on the Lake Superior and Manitoba division. Previous to his recent appointment as superintendent of the Kenora division, Mr. Horn served from 1895 to 1911 as train despatcher of the Fort William and Kenora division; from 1911 to 1912 as chief despatcher of the Kenora division and from 1912 to 1913 as inspector of transportation, with headquarters at Winnipeg, Man. From 1913 to 1915 he was chief despatcher of the Kenora division; then to 1916 was trainmaster, and from 1916 to the date of his recent appointment was chief train despatcher of the Kenora division of the same road.

J. J. Horn

F. A. Rutherford has been appointed trainmaster on the Grand Trunk, with office at London, Ont.; **H. R. McLennan,** chief despatcher at Brantford, has been appointed trainmaster with office at Brantford, succeeding **R. E. Newcomer,** resigned, and **W. K. Rogers** has been appointed chief despatcher with office at Brantford, succeeding Mr. McLennan.

Executive, Financial, Legal and Accounting

Colonel E. M. Heigho, president of the Pacific & Idaho Northern, has resigned on account of ill health. Mr. Heigho was born at Grays, Essex, England, on October 23, 1867, and began railway work in 1882 as an office boy in the general freight office of the Michigan Central at Detroit, Mich., since which he was employed consecutively to 1886 in various clerical capacities in the local offices of the Erie & North Shore Dispatch, the Wabash, St. Louis & Pacific, and the Michigan Central, all at Detroit, Mich. In 1887 he was made chief clerk to the assistant freight claim agent of the Union Pacific at Kansas City, Mo., and later clerk in the freight auditor's office of the same road at Omaha, Neb. From 1887 to 1890 he served as chief clerk to the superintendent of the Idaho Central at Boise City, Idaho. In 1892 he was a rate

clerk in the freight traffic manager's office of the Missouri Pacific at St. Louis, Mo., leaving that position to become chief bookkeeper for a foundry company at Detroit, Mich. He returned to railway service as clerk in the freight traffic department of the Oregon Short Line at Salt Lake City, Utah, in 1899. Early in 1904 he was made auditor of the Pacific & Idaho Northern. In July of that year he was elected vice-president, general manager and treasurer of the same road, and in December, 1909, he was elected president, general manager and traffic manager. In September, 1915, he was appointed receiver of the Pacific & Idaho Northern, at which time he combined the duties of the offices of the general manager, traffic manager, treasurer and purchasing agent, with those outlined above. Mr. Heigho suffered a severe stroke of paralysis in November, 1917, but continued in intimate touch with his duties as president and general manager until October, 1918, when he resigned as general manager, but retained the presidency.

Purchasing

J. M. Velasco, local purchasing agent of the National Railways of Mexico, at New York, has been appointed assistant to the general purchasing agent, with office at Mexico City, Mex., and **F. P. de Hoyos,** general agent of the traffic department, at New York, is now also local purchasing agent, with office at New York.

Railway Officers in Military Service

Major C. P. Stembel, who was general superintendent on the Virginian Railway during 1917 and 1918, is now American delegate of a sub-commission, with headquarters at Saarbrucken, Germany, in the French zone of occupation.

Obituary

William H. Pleasants, president of the Ocean Steamship Company, with office at New York, died on March 18, at the age of 56. Mr. Pleasants served several years as general freight agent at Jacksonville, Fla., on the Florida Central & Peninsular, now a part of the Seaboard Air Line.

M. J. Greeney, supervisor of the Lehigh Valley, with office at Buffalo, N. Y., died on February 28, at the age of 55. He was born at Reading, Pa., in June, 1864, and entered the service of the Lehigh Valley as a water boy at White Haven, Pa., in 1880. He was appointed roadmaster, at Sayre, in 1896, and since 1899 served as supervisor of track at Buffalo.

V. T. Kissinger, formerly superintendent of telegraph for the Chicago, Burlington & Quincy, and later connected with the Western Union Telegraph Company, died, on March 13, of heart failure at his home at Siloam Springs, Ark., at the age of 60 years. Mr. Kissinger was connected with the Western Union for many years as chief operator at St. Paul, Minn., and in 1890 he was appointed general wire chief and electrician, with headquarters at Chicago. In 1904 he entered the service of the Chicago, Burlington & Quincy as assistant superintendent of telegraph, at Lincoln, Neb., and later was advanced to the position which he held at the time of his death. He was retired on a pension by the Western Union Telegraph Company on last October.

J. P. Bradfield, formerly assistant general manager of the New York Central, died in Buffalo, N. Y., on March 12 at the age of 66. He was born at St. Catharine, Ont., and previous to November, 1882, served as despatcher on the Wallkill Valley, now part of the West Shore, and as agent and operator on the Lake Shore & Michigan Southern. He was then to March, 1885, train despatcher on the Hudson River division of the West Shore. In March, 1885, he was appointed superintendent of the same division and held that position until November 1890. He later served as superintendent of the New York, Ontario & Western and in February, 1895, was appointed superintendent of the Western division of the New York Central & Hudson River. From January to July, 1903, he was assistant general superintendent, and from July, 1903, to June, 1906, was general superintendent. He was promoted to assistant general manager of the same road in June, 1906, remaining in that position until March, 1907. He had been in poor health since his retirement from active service.

Thomas Fletcher Oakes, formerly president of the Northern Pacific, died at Seattle, Wash., on March 14, at the age of 76 years. Mr. Oakes was born at Boston, Mass., on July 16, 1843, and entered railway service on June 1, 1863, as purchasing agent on the Kansas Pacific, which position he held for two years when he became purchasing agent and assistant treasurer. The following six years he was general freight agent of the same road when he was elected vice-president, in which capacity he served one year, until his appointment as general superintendent. From April, 1879, to May, 1880, he was general superintendent of the Kansas City, Fort Scott & Gulf and the Kansas City, Lawrence & Southern, and from May, 1880, he was vice-president and general manager of the Oregon Railroad & Navigation Company for one year. The next two years he acted in the capacity of vice-president of the Northern Pacific, and the following five years he held the position of vice-president and general manager of the same road. On September 20, 1888, he was elected president of the Northern Pacific, combining the duties of the general manager with his office from the date of his appointment to May 16, 1889. On August 15, 1893, he was appointed receiver of the Northern Pacific in which capacity he acted until October 25, 1895.

George Hodges, manager of the troop movement section of the Division of Operation of the Railroad Administration, died suddenly at Washington on March 14, of pneumonia. Before the taking over of the railroads by the government, Mr. Hodges was general secretary of the Railroads War Board, and was also in general charge of the troop movement for the railroads. He has also been for several years chairman of the Committee on Relations between Railroads and affiliated committees of the American Railway Association, and he was recently appointed chairman of a temporary war committee of the transportation section of the reorganized American Railroad Association. Mr. Hodges entered railway service in 1886, with the Erie and remained with that road until 1903, when he entered the service of the Baltimore & Ohio. In 1908 he was appointed assistant agent for the receivers of the Seaboard Air Line, and in 1910 he became connected with the Special Committee on Relations of Railway Operation to Legislation, of which he became secretary and later chairman. In 1912 he was also appointed assistant general agent of the American Railway Association, with headquarters in Chicago, and in April, 1916, he was elected chairman of the Committee on Relations between Railroads.

G. Hodges

POINTERS FOR THE YARDMASTER.—Train your men to keep their eyes open for cars of perishable or important freight when moving about the yard. They often can spare a few minutes to place or switch out an important car when you are not about; and when they do so give them credit for it. If they should ever make a mistake and get out the wrong car don't look wise and raise trouble, but pass it over in a tactful manner; there are two sides to the ledger.—*H. D. McKee.*